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IN view of the embarrassment in which the founders and late publishers of this journal find themselves temporarily involved, it may be well to forestall even the slightest agitation on the part of our subscribers or advertisers by saying plainly that the misfortune alluded to affects this journal only through the sympathies of its editors. So far as business relations go the journal, under the same editorial management as always, will continue to fulfil all its obligations to subscriber and advertiser.

THE Pullman experiment continues to excite great interest among those who desire the amelioration of the condition of working people, as well as among sanitarians, and an appendix, containing a description of the town and its industries, is said by the New York *Evening Post* to have been added to the reports of two State Bureaus of Labor Statistics. The writers of these reports naturally regard rather the effect of the Pullman system on the men employed there than more material considerations, but they agree that the Pullman Company, by its thoughtful common-sense, has done about as much to inspire a similar quality in those whom it employs as its enlightened sanitary provisions have to instil habits of cleanliness in those who live in the houses belonging to it. The past year has not been a prosperous one with the car-manufacturing company, and wages have been reduced, but the managers of the company were courteous and sensible enough to present to their workmen a clear statement of the items of expense in manufacturing their cars, and the cost of raw materials, together with the state of the market, the prices obtainable for the finished cars, and the prospects of competition; and the men, understanding by this that diminished cost of production was essential to retaining a market for the cars, acquiesced without difficulty in the reduction of salary proposed to them.

WE shall be excused, we hope, for saying that this seems to us an occurrence of great importance for this country. On the other side of the ocean the practice of treating the workmen in manufactories as something different from portions of the machinery is becoming quite common; but in this country the idea of the dependence of labor and invested property upon each other is almost new, and it is fortunate that the managers of the Pullman Company should have been among its first expounders. Thanks to their wisdom, the rational view of the matter seems to have been immediately adopted by their men, who now, as we are told, hold to the theory that Mr. Pullman is "merely the agent employed by themselves to secure steady work for them at such wages as the car-building trade will afford." Practically, this is exactly the truth, and the fact that Mr. Pullman, in doing so, secures for himself a moderate interest on the money which he and his stock-holders have invested in the business, does not alter the character of the relation between him and his men. The latter would be the last to wish to see him working for them for nothing, or to deprive the people who have put their savings into the company of their legitimate return, and neither they, nor the millions of working men like them would, we venture to say, ever dream of refusing to make reasonable sacrifices when called upon with the frankness and courtesy which the Pullman Company seems to have shown. One of the reports hints that at some future date a plan may be devised for admitting the workmen employed by the car company to a share in the business, but regards this as a matter of secondary importance, on account of the happy state of affairs under the present system. It should be remembered, however, that men are not, and should not be, content with an unvarying condition, even though a happy one; and a prospect of future improvement in the relations between them and their employers will be for most a valuable stimulus to good conduct. It would not be really necessary to make any change in the constitution of the company to enable the workmen to share in its business, since any one can buy the stock in open market; but something might easily be done to encourage such an investment of their savings by subdivision of shares, or by the issue of interest-bearing receipts for instalments paid on stock to be held by the company until fully paid for, or by the formation of small syndicates to hold shares and divide the income from them. This would be for the interest of the company as well as of the men, for the holder of a half or quarter share would be quite as zealous to increase the size of his dividends upon it as the owner of a thousand shares, and would, as a workman employed by the company, be in a much better position to promote the fulfilment of his wishes; so that, small as might be the interest of individual workmen, the aggregate of their holdings, and of their efforts to increase their value, would be anything but insignificant, and the examples of the Godin establishment at Guise, and of the paper manufactory of Laroche-Joubert at Angoulême, show that the workmen are likely to hold before long a very large portion of the capital employed in the business.

THE Rotch Travelling Scholarship has been awarded this year to Mr. S. W. Meade of Boston, in accordance with the result of examinations differing from those of last year mainly in the reduction of the time necessary for complying with their requirements. This was thought to be desirable, in view of the fact that the candidates are generally employed as draughtsmen in offices, and cannot well afford to lose their salary for the four or five weeks which it was last year necessary to devote wholly to the examination work; and the thoroughness of the test does not seem to have been affected by lessening the time allotted to it. Mr. Meade will sail very soon for Europe, to begin his two years of travel and study under the most favorable auspices. It is gratifying to know that the winner of the prize last year, Mr. C. H. Blackall, has been received with the utmost kindness by foreign architects, to whom he carried a general letter of introduction as the holder of the scholarship, and has gained credit for the profession in the United States, as well as for the foundation which sent him abroad, by his industry and attainments; and we hope that his successors will long continue to deserve and increase the good opinion of young American architects which he has done so much to secure. In view of the interest which this annual contest excites in architects' offices throughout the State, we have heard it suggested that the examination questions should be published, in order that intending competitors may be enabled to judge whether their professional knowledge is likely to be sufficient to secure for them a favorable position in the race. If those among our Massachusetts readers who would like to have this done will send us word, we will see what the Trustees of the Scholarship fund say about it.

TAKING all the circumstances into consideration, it is probable that epidemics, in modern times, save more lives than they destroy, by the unusual cleanliness and care to which people are driven by the alarm which they create; and if the

cholera, which is expected to arrive here from France this summer, should treat us as gently as it did the French last year, the net saving of disease and death for the season seems likely to be very considerable. The first appearance of a "cholera scare" this year seems to have been in New York, where it was suspected of having been concocted in the interest of speculators; but the feeling that it is time to make ready against the coming of the disease has now spread to places where a pretence of public spirit is not so often used as a cloak for schemes of private plunder, and we are likely to see some very efficient sanitary work done within a few months. The city which seems to need most urgently a thorough sanitary reform is St. Louis, where a Citizens' Sanitary Aid Association is already hard at work. A document has just been issued by this association, addressed to the owners and users of well-water in the city, pointing out forcibly the danger to which the drinking of such water exposes them at a time when intestinal diseases are prevalent. At present, although there is a good city water supply, there are in St. Louis between six thousand and eight thousand wells, the water of which is used, not only by private families, but by the public, street-corner wells in some places doing the duty which hydrant pumps do in other towns. The walls are sunk through gravel to a stratum of seamed and disintegrated limestone, through which water percolates very freely, and, as analysis conclusively shows, the washings of street gutters and privy vaults, with the leakage from the sewers, runs, almost without hindrance, into them. As every one knows, the ordinary test for pollution of well-water is made by ascertaining the proportion of chlorine present in the water. The chlorine itself is harmless, but its presence, except in a small proportion, shows that salt has somehow found its way into the water. Salt is never found naturally in the soil, except on the seashore or in the vicinity of salt mines, and as its principal use is in the food of human beings, its accidental presence in the ground is almost invariably due to the deposition there of human excretions, which contain, dissolved, nearly all the salt of the digested food; and the appearance of an abnormal amount of salt in water taken from the subsoil of towns thus indicates with certainty that salt from human excreta has washed into it, and with the salt such other soluble or suspended matters as the excreta in question may have been in condition to furnish.

TO test the probable pollution of the well-water, the association had a number of samples analyzed, and found them to contain from fifteen to thirty-six grains of chlorine to the gallon. In the case of the better of these two samples, which was taken from a public pump, sunk in the sidewalk of a street through which a brick sewer ran, the well-water contained practically the same proportion of chlorine as the liquid in the sewer, showing that the sewer furnished water to the well, strained of its more obvious turbidity by soaking through the ground. In the worst case, the well examined was about thirty feet deep, and was situated midway between two rows of privies, fifteen feet distant from each row. As a moment's thought will show, a line drawn from the nearest vault on each side to the bottom of the well would have an angle of about sixty degrees with the horizon, and down this steep hill the liquids from the vaults evidently flowed so rapidly as to reach the well almost undiluted. As the circular of the association judiciously points out, even such well-water as this probably does no great harm, except where typhoid poison finds its way into it, but the importation of a case of cholera into the neighborhood of one of the wells, or into a house communicating with one of the sewers which feeds wells on its course, would immediately set in motion towards such wells a stream of excremental liquid, turbid with thousands of millions of the specific germs of the disease, any one of which, if taken into the system, would be sufficient to set up the most virulent case of cholera, multiplying itself almost to infinity, and setting a fresh stream of poison on its way to infect the neighborhood. This is the well-known mode in which cholera is spread, and the exceptionally dangerous character of the conditions which prevail in St. Louis may be inferred from the history of the cholera epidemic of 1849, when, although the population was very much smaller, the number of deaths from this disease alone was sixty-eight in a thousand, or more than six times as many as in New York, and more than twice as many as in New Orleans, a city which is notorious for possessing all advantages except that of healthfulness. In 1866, after a public water-supply had been introduced, cholera again visited the country, and although in the new portions of St. Louis, where the city water only was in use, there were no cases, the mortality in the older portions, which used the wells, was so great as to bring the total death rate from cholera alone to seventeen and a quarter per thousand of population, or nearly thirteen times as many as in New York. At this time, although much less was known about the dissemination of cholera than now, the connection of the wells with the disease was so evident that many of them were ordered to be closed, and the city authorities have shown a commendable prudence this year in directing the closing at once of all wells which furnish water containing more than six grains of chlorine to the gallon. This limit is far too high, but it will, it is said, serve to abolish a great majority of the wells in the city, and more stringent precautions may be taken later.

THE *Sanitary World* offers a warning to persons who are in the habit of advancing money on mortgage to builders without examining the structures intended to secure the loan, which derives additional emphasis from the recent fall of one Buddensiek block in New York, and the enforced rebuilding of others which is now going on by direction of the Building Bureau. In the English case to which the *Sanitary World* refers, a builder of the Buddensiek sort had erected in London two houses, the workmanship of which was far from satisfactory to the district surveyor, who complained against him for using bad mortar, and had him fined for the offence, and ordered to change his method of building forthwith. The builder took no notice of the order, but completed the houses ready for occupancy, and then managed to obtain, as builders know how to do, a large loan upon them, giving a mortgage in return. The Metropolitan Board of Works, whose mandate he had disobeyed, had in the meanwhile, however, instituted legal proceedings against him, and obtaining a verdict, with the necessary authority from the Court, it proceeded, after ordering out the occupants, to demolish both the houses, and with them the security of the unfortunate lender, who had really bought the houses at a high price from the builder, without troubling himself to inquire about defects which, as it proved, made them worse than worthless. The *Sanitary World*, while deploring the success of the trick by which the rascally builder shifted the consequences of his misdeeds upon the innocent mortgagee, points out that the latter, by taking the precaution to inquire of the district surveyor as to the character of the houses, might easily have ascertained that they were not only defective, but had been actually condemned, and ordered to be taken down, and would thus have been warned against throwing away his money in a loan upon them; and truly says, that notwithstanding the hardship to the mortgagee, his want of prudence should not be allowed to interfere with the public welfare, which unquestionably demanded the destruction of the buildings.

LE GENIE CIVIL gives a short account of the reunion of the employés of the great Chaix printing-house in Paris, one of the establishments which practices the sharing of the profits of its business with the operatives employed in it. About three hundred and fifty men and women were present at the meeting, and listened first to the report of the committee of consultation on the financial results of the past year. During the year, as appears from the report, about two thousand dollars had been deposited by the operatives in the Government savings bank, sixty-eight had taken or continued accident insurance policies, and other investments had been made by various operatives, amounting to about twenty-two hundred dollars. M. Chaix then announced that the percentage of profits assigned to the operatives amounted for the year to fifty-nine hundred dollars, which would be shared at the rate of three and six-tenths per cent on each person's salary for the year. Besides this, an extra dividend would be paid amounting to six per cent of the share of profits, which had accrued from the forfeitures of profits incurred by persons leaving the establishment. Although the profit to be divided does not seem very large, it must be remembered that business is as dull in Paris as here, and that the competition in the printing trade is very great, so that, while the Chaix operatives may not be getting rich very fast, they will enjoy their Easter dividend of twenty or thirty dollars apiece as much as they might a larger one in more prosperous times.

HOW TO DRAIN A HOUSE.[1]

Alexander Pope's Chair

THIS is the title of a little book by the most popular of all writers on sanitary matters, containing the latest observations and opinions of one who has the great merit in an adviser on technical subjects of frankly changing his opinions whenever his increasing experience shows him the propriety of doing so. To this merit Colonel Waring joins another, — that of a peculiarly clear and forcible method of expressing his ideas, and if experts find his double-leaded pages less compactly filled with suggestions of value to them than they would like, they must remember that the author does not write for engineers, but for the public, and that his lucid and leisurely explanations, aside from their charming literary style, are much better adapted to interest and instruct the average householder than the dry volumes in which the professional man delights.

For this reason the book offers very little to professional criticism. In other hands it might, with all its merits of style, have become only a means of misleading its readers, but Colonel Waring is far too skilful and experienced to make mistakes in an elementary treatise, and nearly all that he says will be practically approved by every sanitarian. The point on which the main difference of opinion would occur would probably be that of trap-ventilation, Colonel Waring in this book declaring plainly his belief that the back-ventilation now required by law in most large cities is so much worse than useless that if he were compelled to put in the back-vent pipes, as in his practice he often must be, he would be tempted, after their completion, to make them "inoperative by closing the main ventilation pipe at some point near its upper end."

We do not hesitate to say that this seems to us to be going altogether too far, in the present state of knowledge on the subject; and although we are quite willing to agree with those who sympathize with Colonel Waring's view that the present plumbing laws allow too little discretion in such matters to the designer of a plumbing system, we should be sorry to see liberty given to the readers of his book to stop up vent pipes according to their interpretation of his opinions.

It should be remembered that very few non-professional readers of works of this kind will stop to distinguish between definite rules and mere suggestions; and, besides the proposition to stop up vent pipes, there are one or two others of the latter, such as that relating to a revived "tip-up" basin arrangement, and another describing, with rather guarded approval, the ancient method of connecting bath and basin wastes with water-closet trap, which we think could hardly be followed out without disappointment, if not danger.

So much being reserved, the little volume may be commended without hesitation to the favor, not alone of the intelligent non-professional man, but, in another way, of engineers and architects, who although they probably know nearly all that is in it, with a great deal besides, are often called upon to recommend simple technical books to their clients, and will find this one of the best of the kind.

We present, with more than ordinary humility, our apologies to Signor Bonanno, who forwarded to us just at the busiest season of our year the advance specimen sheets of one of the, in many ways, most notable publications[2] relating to architecture that has ever been undertaken.

Signor G. Damiani Almeyda, architect, engineer, and Professor of Drawing in the Royal University of Palermo, having, in the course of his duties at the University, discovered that there was not in existence any comprehensive work embodying a progressive course of architectural drawing, has had the patience to prepare such a work on the most elaborate and expensive scale. More than this, finding that no publisher was willing to incur the cost of so expensive a work, he has had the audacity to turn publisher himself, and it is now being produced under his personal supervision. "This I have done," he says, "without measuring the cost, having only in view the usefulness of the undertaking."

With these sheets before us, we cannot doubt either of these assertions. Of the general scope and character of the work, Professor Almeyda says: —

"From the first lines of ornamental design to the highest architectural composition, I have strictly followed the purest styles of the best epochs of ancient art, taking for my prototype Nature, a source of infinite beauty, from which the greatest masters were and are able to produce their masterpieces.

"Avoiding that minuteness of execution which belongs more to the embroiderer than the artist, I have imitated in the models of antiquity their freedom and imposing firmness of execution, which, together with accurate manipulation, is only the fruit of long practice and observation.

"When possible, with the exigencies of space, I have copied the antique models on the same scale as the originals, so that the student might see how the ancients, according to the proportions of the treated subject, varied their manipulation.

"Some of the original drawings are in simple outline of pen or pencil; others, either in half or in full light and shade, but most are in water-colors, according to the requirements of a perfect representation of the subject. The former will be executed in lithography or engraving, and the others in chromo-lithography.

"The work is divided into three volumes in folio, 27 1-2" x 23 3-4", on specially prepared paper, and each volume will contain forty plates.

"The first two volumes consist of a complete course of ornamentation taken from the antique, and placed in comparison with Nature, and the orders of the antique and modern Greek and Roman architecture.

"The third volume is dedicated to architectural composition, with a study of the adjustment and superposition of orders, and high composition in a series of plans of secular edifices, chosen from the most difficult for composition and study. These are on a large scale, with all the details necessary in construction for the material execution of the work. This will be of great help to the student, in the difficulties he may encounter in practice. I may add that all the designs of this third volume have been selected from many that have gained the principal prizes in the various exhibitions of fine arts, these having been found the best in composition."

These statements are fully supported by the plates before us, which represent specimens of the illustrations of the several volumes and show satisfactorily the manner in which the generous programme is to be carried out, and nothing but praise can be accorded to their execution in the matter of delineation and, in only a slightly less degree, to their coloring, which is a little hard and unsympathetic as chromo-lithographs of architectural subjects are apt to be.

But in spite of the manifest excellences of the work, one cannot but question the wisdom of the undertaking looked at simply from the business point of view. It is the kind of enterprise which should be undertaken by a government through its recognized Academy of Fine Arts rather than by a private individual, as the burden of expense must be so heavy, even in a country like Sicily, where, as in Italy, we may suppose skilled artistic labor is relatively cheap, that it is not unlikely to be found that the private purse of the energetic Professor is not able to endure the draught upon it, and consequently either the entire abandonment of the publication or a very undesirable lowering of the standard of excellence adopted for the mechanical execution of the work may be brought about.

The appreciation of publications of this class is so different in this country and in Europe that it is difficult to gauge the commercial value of the undertaking, but our impression is that but few architects in America would think it prudent to spend one hundred and twenty dollars for Professor Almeyda's work, even if they are expected to pay for it in installments, spread over four years, of three dollars per part as published. But we should say that all public libraries, societies of fine arts, and clubs which maintain libraries and art collections ought to feel that this work will prove a desirable acquisition.

AMERICAN ARCHITECTURAL JOURNALS.

Old English Chair, formerly belonging to the Counties of Devonshire

IT will be quite difficult for any one who has the fortune to see a copy of the most recent adventurer which joins the ever-increasing ranks of building journals in this country to forget the title which its projectors have selected for it. Seventeen times upon the first page its titular appellation confronts the reader with all the insistence that capitals are capable of exerting. The "long-felt need" is once more annihilated, but we notice that the sensitiveness of this need is of such a peculiarly pertinacious vitality that, though it is buried at least once a year, it comes to life again with equal regularity.

We say that the *National Builder* is the latest accession to the technical literature of the building art in this country, and yet we cannot feel sure that it is, as the class seems a peculiarly fecund one. It may be interesting to give the following list of the still surviving journals which in one way or another endeavor to educate the building classes: —

1868, *The Builder and Wood-worker* (formerly the *American Builder*). New York.
1876, *The American Architect and Building News.* Boston.[3]
1879, *Carpentry and Building.* New York.
1879, *The California Architect and Building News.* San Francisco, Cal.
1879, *Cincinnati Building Review.* Cincinnati.
1882, *Building.* New York.
1883, *The Builder.* Holyoke, Mass.
1883, *The Inland Architect and Builder.* Chicago.
1883, *The Northwestern Improvement Record.* St. Paul, Minn.
1883, *The Journal of Progress.* Philadelphia.
1883, *The Building Trade Journal.* St. Louis, Mo.
1884, *The Builder and Manufacturers' Journal.* Pittsburgh, Pa.

And these are not all, nor do they include any journals which do not make building the chief object of their care, though in most cases

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[1] "*How to Drain a House.*" Practical Information for Householders. By Geo. E. Waring, M. Inst. C. E. Consulting Engineer for Sanitary Drainage. New York: Henry Holt & Co. 1885. Price $1.25.

[2] "*Institutions of Architecture and Ornament,*" based on ancient Art and on Nature. By G. Damiani Almeyda, Architect, Engineer, and Professor of Drawing in the Royal University of Palermo. To be published by subscription in forty Parts. Price, $3.00 per part.

[3] Published weekly; all others mentioned are issued monthly.

it may be said of them that their cultivation of the field is somewhat scattered and general in its nature, few of them giving exclusive attention to any one portion of the many subdivisions of the art of building.

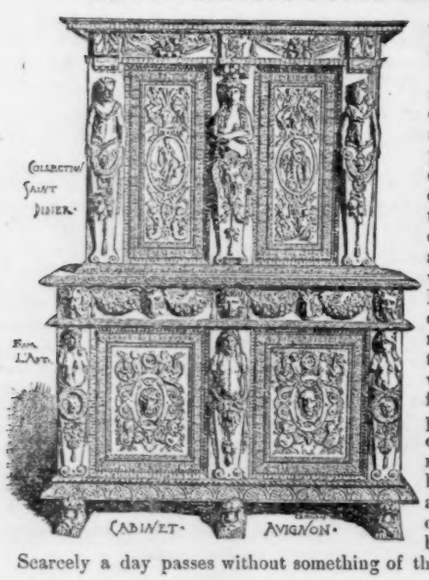
The *National Builder*, however, proposes to concentrate its attention upon the point "where the architectural journals leave off," and by so doing hopes to make the "*National Builder* the phenomenal journal of the building art." This hope is a laudable one to entertain in private, but it seems a little unwise to indulge in magniloquence so early in the struggle for survival, for the fitness which is the touchstone of journalistic existence, at least, is a thing to be accomplished by deeds rather than by assertions. Moreover, it tempts the critic to be a little captious, for he feels that the invitation to send his own journal in exchange for the *National Builder*, under the assurance that his "columns will be criticised and commented upon," will probably lead to the wearing of frequent sackcloth. The bombastic tone which appears in this first issue is, we think, more likely due to the publishers than to the editor.

The essential and distinguishing feature of the *National Builder* is a colored plate of fair execution, showing, in plan and elevation, a wooden dwelling-house of the most pronounced Western vernacular, and a sheet of details on manilla tissue paper, which are said to form a "complete set of architect's plans," a statement which any architect who sees them will probably feel is distinctly libellous.

Another feature is the "American glossary" of architectural terms, of which a page is given, which contains one hundred and twenty-seven words beginning with A, and of which forty-three only can by the widest construction be considered either ordinary terms or useful. The balance is made up of such words as "abamurus," "abcus," "acrolinthon," "æclisiola," "aetiaior," "allerion," "anabathrum," "andronitis" and the like: words which we have no shame to confess we never saw before and never expect to see again, though we may perhaps hear them used by some carpenter who has laboriously mastered them and their definitions, and uses them in place of the ordinary English term or some vernacular periphrasis.

We speak above of the *Northwestern Improvement Record*, but we have just opened the last issue of that journal, and discover that its title has been changed to the *Northwestern Architect and Improvement Record*, but we see it speaks of itself editorially as *The Architect*, pure and simple. This we think is a mistake, for we presume that so excellent a journal is frequently represented in the daily papers by extracts, and if these are credited to "*The Architect*" only, it is likely to be obliged to share honors which should be its own alone with the London journal of the same name, or even with ours, which is often so styled by exchanges who overlook the patriotic prefix. Apart from this objection, the change of style is judicious, as its former title was not an index of its character, which was essentially that of an architectural journal, while the name might as appropriately relate to milling, which, rather than architecture, one is rather more likely to associate with the Northwest. Although one of the youngest of the journals of its class, it is by no means the least vigorous, and it comes uncommonly near being that *rara avis* of journalism, a monthly periodical which is not nearly a month behind the times. It really seems, looking at the matter longitudinally, as if the field of architectural journalism were now pretty fully occupied by representatives at Boston, New York, Cincinnati, Chicago, St. Paul and San Francisco, though Salt Lake City still offers an unseized opportunity. But in the matter of latitude there are still openings which we expect to see closed by other journals of the class, and we trust that in each case the new journal may become the centre of as healthy and vigorous an impulse as our distant neighbor at St. Paul.

BRONZE STATUES FOUND AT ROME.



THE discovery of an antique bronze statue such as that found on Sunday, February 8, or even the part of one, is an event of the greatest rarity. Since the commencement of the building operations for the conversion of mediæval Rome into a modern capital, and the new impetus simultaneously given to works of excavation for antiquarian purposes only, an incredible number of marble statues, busts, bas-reliefs, and other works of sculpture have been found.

Scarcely a day passes without something of the kind being disinterred. It may be a mere fragment or, as has occurred more than once, half a dozen statues and busts lying together. These have been sufficient not only to fill but to crowd a new museum in the Capitol, without taking into account a series of great store-rooms piled up with mutilated statues awaiting restoration — heads, trunks, limbs, and fragments still unsorted, among which, as experience has taught, there are doubtless many pieces that will be found to fit each other, to the restoration of more or less complete works. But among this marble population, this mass of artistic treasure, accumulated in the course of fourteen years, the only bronzes discovered have been the feet, one arm, and some pieces of the drapery of a statue found on the line of the Tiber-embankment works, and supposed to be the remains of one of those erected to Domitian that had been thrown down and flung into the river, the head of a bronze statue of the Emperor Augustus, and some unimportant fragments.

We have a record dating from the middle of the sixth century that there were at that time no fewer than 4,000 bronze statues in Rome. Cassiodorus describes the number of statues that adorned the city as almost outnumbering the living population. Poggius, Pope Martin V's Secretary, about the middle of the fifteenth century, laments that of all this wealth of art nothing remained but one bronze horse (the equestrian statue of Marcus Aurelius) and five marble statues. Since then thousands of marble statues, busts, and bas-reliefs have been brought again to light. The Vatican Museum alone contains 2,000 of the grand total comprised in the Capitoline, Lateran, Ludovisi, Albani, Torlonia and other galleries in Rome, the Uffizi in Florence, the Louvre, the British Museum, and the contents of the Berlin and St. Petersburg galleries, to say nothing of the numbers of marble statues scattered through the private palaces of Rome and elsewhere, and the multitudinous results of the excavations here since 1871 I have already mentioned. But, alas! the bronze statues recovered can be counted on one's fingers and leave some to spare. The Vatican Museum can only boast of one, and the Capitoline of but three, exclusive of "the thunder-stricken nurse of Rome," and the mutilated remains of some others. A lapse of years occurred between the dates when they were discovered. There is no record as to when or where the youth extracting a thorn from his foot and the statue of another youth, a patrician assistant at the sacrifices, were found. At the end of the fifteenth century the gilt bronze Hercules of the Capitol was discovered near the Forum Boarium. In 1849 a bronze horse, much injured, one of the feet of its rider, and the posterior half of a bronze bull were dug up in the Vicolo delle Palme. In 1864 the colossal gilt bronze Hercules in the Vatican, now called the Hercules Mastia, was found beneath the Palazzo Righetti among the vestiges of Pompey's buildings on the Campus Martius. In 1881 the workmen busy on the foundations of the Tiber-embankment came upon the wreck of a bronze statue, supposed, as I have said, to be one of Domitian, and finally the statue which forms the subject of this letter was found on the 8th of February by the builders of the new national theatre on the brow of the Quirinal overlooking that part of the Via Nazionale of the actual city which joins the end of the Corso and the Piazza Venezia, or the southern extremity of the Campus Martius of ancient Rome. The site was that where stood Hadrian's Temple of the Sun and Constantine's Thermæ in close vicinity to each other, and the statue was found lying in a mass of débris, together with some drums of small fluted columns of tufa.

Its recovery, therefore, is an event of the highest artistic and archæological interest and importance. But more than that, it is the most important discovery of the kind that has yet been made, from the fact that it is the first complete bronze statue of undoubted Greek workmanship — that is, wrought in Greece by one of the great masters of antiquity and brought thence to Rome, probably a victor's trophy — that has yet been discovered in Rome, of all the works of all that crowd of sculptors who wrought in bronze, of whom Pliny, Pausanias and others have left us the names. It is an iconic nude statue of a victorious athlete standing erect. The weight of the body rests upon the right leg. The left is slightly flexed. His right hand is placed behind his back in the position of that of the Mercury of the Belvedere. His left is held aloft and his gaze is turned toward the right. The statue is fractured cleanly across the left shoulder and the right thigh. The left knee is broken across and some pieces detached, and the right foot is rather badly shattered; but all the pieces of the statue have been found, excepting only the index finger of the raised hand and the object that hand evidently held. The bronze, particularly as regards the head, arms, and body, is in a fine state of preservation, but the legs from the knees downward are a good deal corroded and incrusted. In point of art it is a grand piece of modelling, in which the hand of a great master has done justice to one of those splendid specimens of the human form in full training which the Olympian and other games offered to the Grecian artists. The model and the sculptor were worthy of each other. It would be difficult to overrate the physical symmetry of the one or the talent of the other. Like all the statues of victorious athletes — this is a portrait from head to foot, a lifelike, breathing portrait. The face is handsome and replete with animation and individuality. The sockets of the eyes are hollow, the balls having been originally of smalt or other similar material. The frontal sinus is strongly developed, giving the forehead a somewhat retreating line, and the nose is slightly aquiline. The mouth and rounded chin are particularly well formed.

It is impossible to look upon this statue, and still more to examine

it in detail, without being reminded of Pliny's descriptions of the characteristic which marked the works of Lysippus. It answers to that description in every point. The head is small, and if the sculptor has flattered his model in any respect it has been by an imperceptible lengthening of the lower extremities- to be detected only by measurement, which gives the figure additional lightness. The details of the hair upon the head and body are rendered with peculiar care. The thigh especially and other fleshy parts are modelled with much roundness of treatment, while the planes are not neglected; moreover this statue is peculiarly remarkable for the careful manner in which even the smallest details are treated, as, for instance, the creases, or crease lines, on the neck, abdomen, and elsewhere, and the folds of the flesh under the knuckle of the little finger as it closes on the palm. This, briefly, is an exact description of the style in which this statue is wrought, and by turning to Pliny's "*Natural History*," lib. xxxiv., chapter 19, you will find that what he says of Lysippus's work tallies strikingly with it.

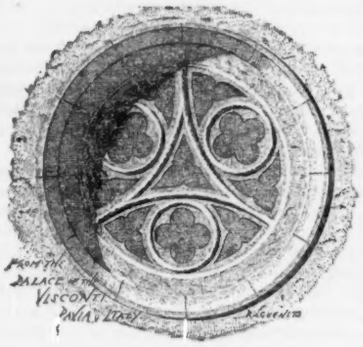
The treatment of the hair of this athlete is very remarkable. He is a young man around whose chin the razor has not yet played. The down on the cheeks and chin has just become soft, short hair, beginning from above the corners of the mouth. This is all delicately engraved upon the bronze in a variety of gentle curves which could scarcely have been better placed had each hair been studied. The hair under the armpits is treated in the same way. On the head the hair, cut short, is divided into slightly curved locks corresponding in style exactly to the treatment of the hair on the head of the marble copy of the Apoxyomenos by Lysippus, found in 1849, and now in the Braccio Nuovo of the Vatican Museum; but in this bronze each lock of hair has been carefully tooled over and finished with the graver. Above the pubes the modeling and treatment of the hair are the same, and that on the eyebrows is also well defined in relief. There is a marked similarity between the modelling of this statue and that of the Apoxyomenos, and taking all these things together I cannot but feel more than convinced that in this bronze we have before us a veritable original statue by Lysippus, the only one of the 1,500 bronze works he is said to have executed that has come to light.

In one respect, that of height, this bronze differs, so far as I remember, from the statues of other athletes. Those of which we have ancient copies, including the Apoxyomenos by Lysippus, are all of life size, while this stands six feet ten and one-half inches in height. If it were not so evidently a life-like portrait modelled from the man himself it represents, I should pronounce it to be that statue of Polydamas by Lysippus mentioned by Pausanias at the beginning of the sixth chapter of his sixth book, and who, he says, was the tallest man that had been seen since the heroic age, not excepting any race of giants there may have been before that. But Polydamas conquered in the Pancratium in the ninety-third Olympiad, and Lysippus flourished in the one hundred and thirteenth. We have no record of when Lysippus was born or when he died. That he must have lived to a great age would appear evident from his having made the extraordinary number of 1,500 statues, and he may have been well advanced in years when, according to Pliny, he flourished at the date of Alexander the Great's death. According to Pausanias, Lysippus also made the statue of the athlete Troilus, who conquered in the one hundred and second Olympiad. If Lysippus was seventy-five years old at the date of Alexander's death, he would have been thirty at the time when Troilus was victorious, and consequently quite old enough to have been intrusted with the making of his statue. This is quite within the bounds of possibility. But it was thirty-six years earlier that Polydamas conquered in the ninety-third Olympiad. Between that and the one hundred and thirteenth there is a lapse of eighty years, and it follows, therefore, that Lysippus could not possibly have made his statue until some thirty years or so after the date of his victory. At that time Polydamas, presuming that he was still alive, must have been a man of fifty at least. Lysippus could have measured his proportions, and, from his lineaments, with sufficient exactness have depicted him in clay as he appeared at the age of twenty. Moreover, he may have had the help of a painting of Polydamas executed at that age; but all this notwithstanding, the head and face are so strikingly life-like and the whole statue is so full of vital individuality as to make it difficult to suppose that it could have been modelled otherwise than direct from a man of the age it represents. But then, on the other hand, what may be difficult for me to comprehend may have been easy for Lysippus to accomplish. — *Letter to the London Times.*

Rome Dispatch to the *London Times*, April 4.

There is great excitement and rejoicing in the artistic and archæological world of Rome at the discovery of another life-size bronze statue of evident Greek workmanship close to the spot where the bronze athlete was recently found. It represents a pancratiast, a Greek prize-fighter reposing seated after the combat, his elbows resting on his knees, and his forearms and hands, with the cestus still on them, extended in fatigue one over the other. The statue is uninjured, with the exception of a fracture partly across the right thigh, from which a bit from the inside surface has been lost. The head, hands, and feet are perfect, and, judging from the cestus on the arms and hands, the work is one of great antiquity as well as of artistic interest and value. The discovery of two life-size bronze statues within a few weeks is an unparalleled event in the annals of art in Rome. It is believed that this statue and that of the athlete were purposely hidden where they have been found, and hopes are therefore entertained of further discoveries being made.

THE HISTORY OF WINDMILLS.



ATMOSPHERIC disturbances causing wind have from a high antiquity been employed as a motive power, and probably the earliest application of this force was the propulsion of ships by sails. Among the most primitive races, long before we made much progress, this power was applied in the navigation of small vessels; and the ancient Phœnicians, Greeks and Romans were all of them well acquainted with this mode of employing the force of the wind for the purposes of human industry. It is to be regretted that we have no records of the time when it was applied as a motive power in mills; this event is lost in the oblivion of the past, and it was not till early in the thirteenth century that we find the Dutch and French employed in the construction of windmills adapted to the wants of an energetic and industrious population. These times were marked by a growing intelligence, that encouraged and fostered inventive talent, and the Dutch millwrights and engineers were long celebrated for their skill and knowledge in every art that had for its object the improvement of the industrial resources of the people. The following account of their ancient history, as far as our knowledge extends, may not be uninteresting to the general reader.

When were windmills introduced into England? The Romans had land and cattle and water mills, but "it is very improbable, or much rather false," says Beckman, "that they had windmills," nor does there seem to be any sufficient ground for the common notion that Europe derived its windmills from the Saracens, through the Crusaders. It is after or about the date of the Norman conquest that we begin to hear mention of mills moved by wind in this quarter of the world. "They were first known in Spain, France and Germany," says one of the authorities quoted by Haydn, "in 1299." When were they first known in England? The "*Boldon Book*" of 1183 has frequent mention of mills; as, for example when it speaks of "Gateshead, with its borough and mills, and fisheries, and bakehouses, and with three parts of the arable land of the said town, renders sixty mares." But there is no direct description of the kind of mills which were in use. Though there were horse and water mills at that time, the "*Boldon Book*" affords us no glimpse of a windmill, with its revolving wands, lending a picturesque air to the scenery of the bishopric. In a volume, however, containing Hugh Pudsey's survey of the County Palatine (edited for the Surtees Society by the Rev. William Greenwell), there is also a roll of receipts and expenditures of the twenty-fifth year of Bishop Bec (1307), wherein, among repeated mentions of mills, there is specified distinctly not only a water but a wind mill.

From this it appears that we did not get our windmills from the Saracens, and the probability is that we had them on this side of Europe before they came into use on the other. It was not till 1332 that Bartolomeo Verde proposed to the Venetians to erect a mill to go by wind; and a site was only granted to him on condition of its surrender if his experiment should fail. Windmills were probably scant at the close of the eleventh century, when the Crusades broke out; but in the twelfth they began to be more common, and "a dispute arose whether the tithes of them belonged to the clergy" — a question which Pope Celestine III very naturally, and not unreasonably, determined in favor of the Church.

An ingenious writer in the *Practical Mechanics' Magazine* states that "about seventy years ago a master mariner residing at Dunbar, in Haddingtonshire, devised a novel windmill on the horizontal construction. It consisted essentially of an upright shaft, which carried four arms, at the extremities of which were four masts rigged with try-sails, and the sheets were adjusted so that the sails might take their proper positions, according as they were acted on by a beam wind, 'booming out,' or coming up in the 'wind's eye.'" A mill so constructed would not possess the important element of durability, as the violent jerks imparted to the sheets would very soon snap them. Several mills on the horizontal construction were in use at the town of Eli, in the litigious kingdom of Fife, at the end of the last century, and were employed in grinding indigo, but they have long since been removed.

About three or four centuries ago, the avaricious landholder, favored by the meanness and injustice of Government and the weakness of the people, extended their regality or kingship not only over all streams, but also over the very air and mills which it impelled, so that small proprietors, before erecting a windmill upon their own property, had first to obtain permission from the superior of the province before doing so. The early mills were immovable, and

could only work when the wind was in one quarter; they were afterwards placed, not on the ground, but on a float which could be moved round in such a manner that the mill should catch every wind. This method gave rise, perhaps, to the invention of movable mills. To turn the mill to the wind, two methods have been invented and are in common use; in the one the whole structure is arranged so as to turn on a post below, and in the other the roof alone, together with the axle and the wings, is movable. Mills of the former kind are called German mills; those of the latter Dutch mills. They were both moved round either by a wheel and pinion within, or by a long lever without, which acted as a stay to the structure, and which was sometimes connected at its extremity to a cart-wheel, in order to facilitate its movement horizontally.

During the period of the Crimean war, Sir William Fairbain had an opportunity of examining several of the windmills in European Turkey and also in the Crimea. Speaking of these, in his "*Treatise on Mills and Mill-Work*," he says that around the town of Eupatoria, in the Crimea, there appeared to be nearly two hundred windmills, chiefly employed in grinding corn. All which were in a workable state were of the vertical construction, save one horizontal mill, which seemed to have been out of use for at least a quarter of a century. The tower of this mill was built of brickwork, about twenty feet diameter at the base, and about seventeen feet at the top, and twenty feet high; the revolving wings, which consisted of six sets of arms, appeared to be about twenty feet diameter, and about six feet broad, fitted with vertical shutters, which were movable on pivots passing through the arms, the shutters being each about twelve inches wide by five or six feet high, and the pivots were fixed at about one-third of the breadth from the edge of the shutter, in order that the wind might open and shut them at the proper time, during the revolution of the wings. About one-third of the circumference of the wings was surrounded by a segmental screen to shelter the arms and shutters while moving up against the wind, and the screen seemed to have been hauled round with ropes, in order to suit the direction of the wind.

Sir William Fairbain also examined one of the most recently-erected mills on the vertical construction, which had the words "*Moulin Français*" inscribed upon the door, by way of recommendation. The tower of this mill was also of brickwork, and appeared to be eighteen feet in diameter at the base, and about fifteen feet at the top, and about twenty-two feet high. The four wings were about thirty-five feet in diameter, and of a rectangular shape, about fifteen feet long and five feet broad. The surface exposed to the wind was increased or diminished by the application of canvas sails, whose spread could be raised by reefing or twisting up the extreme end of the sails when the mill was in a state of rest. The main axle, which was octagonal in form, was constructed of oak, about fifteen inches in diameter at the neck, and about ten inches at the rear end. The front of the axle, which received the arms, was square, and the two pairs of arms did not intersect the axle in the same plane, the one pair being in advance of the other. All the arms butted against the axle and were united to it by side pieces, which were securely bolted to the arms and through the axle, which rendered mortising unnecessary, and preserved the strength of the shaft. The bearing in which the neck of the axle revolved seemed to be formed of some hard wood, probably lignum-vitæ, and was lubricated with soft-soap and plumbago. The rear end of the shaft was fitted with an iron gudgeon, about three inches ni diameter, secured by iron hoops and wedges. About the middle of its length this axle carried a face-wheel about four feet in diameter, which was constructed entirely of timber; its arms were mortised through the axle, and secured by iron hoops round the rim, which formed the bearing surface for the friction strap or brake for arresting the speed of the mill. The teeth of this wheel, which were about three and one-half or four inches broad and four and one-half pitch, geared into a trundle or pinion about fourteen or fifteen inches diameter, fixed on the top of a long, vertical wrought-iron shaft, about two and one-half inches square, which was coupled at its lower extremity to the rhynd on the top of the millstone spindle, the long shaft being steadied by a bearing near the centre of its length to prevent any jarring or vibration being communicated to the revolving millstones.

When Sir W. Fairbain visited the mill, the miller was engaged in laying on the revolving stones; he was thus enabled to see the working faces. The millstones were about three and one-half feet in diameter, and were formed of a single stone, similar in appearance to the white silicious burr obtained from the quarries near Rouen. The stones were not indented with roads and channels to assist in grinding and throwing out the flour, but were simply roughened or cracked with the miller's pick. The neck of the millstone spindle was guided by a bushing of hard wood, with the fibre endways — a mode of bushing employed for more than half a century in the flour mills of this country, and which, no doubt, gave the idea to Mr. Penn, of Greenwich, for his mode of bushing the screw-shafts in our modern steamers, and which was better than gun-metal in situations precluding the use of unguents. When the mill was set going, the wings, which were thirty-five feet diameter, performed twenty-nine revolutions per minute, when loaded, and the extremity of the sails acquired a velocity of about thirty-two thousand feet per minute, or nearly thirty-five miles per hour, and which showed that the "Crim Tartars" knew the importance of letting off their prime movers. It is more than probable that we are indebted to the Dutch for our improved knowledge of windmills and wind as a motive power. Half a century ago nearly the whole of the grinding, stamping, sawing and draining was done by wind in the flat countries, and nearly the whole of our machinery depended on wind, or on water where the necessary fall could be secured. These sources of power, however, are gradually being abandoned, and wind as a motive power of any great importance may be considered as a thing of the past. — *Iron Age.*

THE ILLUSTRATIONS.

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

COMPETITIVE DESIGN FOR A COUNTRY STABLE. DESIGN SUBMITTED BY "*Old Apple-Tree.*"

THE stable contains two stalls for horses and one for a cow. The latter has been arranged so that any moisture from it runs off without the possibility of affecting the horses' bedding. The back door gives convenient access to the paddock and the manure-pit. Off the stable is a room in which stands the harness-case and the stove. This room may also serve as a tool-house and feed-room. An upper floor, the height of which from the ground-floor is eleven feet three inches, affords space for the storage of food for the cattle. The opening into this floor is above the coach-house door, so that loads may be backed up close under it. The man's room is on this floor, immediately over the harness-room; the floor of this room can thus be made air-tight and comfortable, being isolated by the partitions from the rest of the building. The entry of fresh air has been considered as amply provided for where so many doors and windows are at disposal. For the egress of the deteriorated air from the stable there are, besides the openings above the hay-racks, three openings above the stable passage. These are protected by wooden gratings (see details), which may be removed when straw for bedding is to be thrown into the stable. The upper story has free communication with the outer air through the large ventilator in roof. Besides the excavation necessary for the barn proper, a pit is required for the underground cistern. The digging for manure-pit is also included. The foundation walls and the back and sides of manure-pit are to be of local stone. The manure-pit wall is to be built in cement, the bottom of concrete six inches thick. The sides and bottom are to be lined with hydraulic cement. A four-inch bed of gravel and cement concrete is to be laid on rough boarding of wash-rack in coach-room and covered with asphalt. The rain-water cistern is to be six feet deep and six feet inside diameter, built of brick (eight inches thick) in cement, the bottom to be concrete, the whole to be lined with good hydraulic cement. Overflow-pipe to be furnished leading to a dry well at a point isolated from other waste. The lumber to be spruce, well seasoned and of best quality. The floor-beams, rafters, studs, etc., to be of dimensions shown on drawings. The interior is to be finished with vertical sheathing. The exterior is to be finished with shingles dipped in creosote. All doors, except where shown otherwise, are to be battened. All windows are to be double-hung, except where otherwise shown. The stable-fittings are to be iron; the finals are to be of wrought-iron, as designed. All the details indicated on the drawings are to be done in the most thorough manner.

The affixed estimate has been furnished by a builder in Boston. The signed estimate is in the possession of the author of the design.

ESTIMATE.

60 yds. excavation, at 30 c.	$18.00
40 perch stone (laid), at $3.50	140.00
2,000 bricks (laid), at $18 per M.	36.00
7,000 ft. spruce frame (in place) at $23	161.00
2,500 ft. spruce plank, first floor	75.00
1,300 ft. spruce boards, second floor	40.00
2,000 ft. spruce sheathing	75.00
3,500 ft. hemlock boards (laid)	75.00
2,500 shingles (laid)	125.00
12 windows	75.00
1 large door outside	15 00
2 small doors outside	20 00
3 inside, finished	15.00
1 flight stairs	20 00
3 small sashes in stalls	5.00
Iron-work for stalls	35.00
Outside finish	50.00
Ventilators	55.00
Finials	15.00
Pump and plumbing	50 00
Gutters and conductors	39.00
Carriage-wash	28.00
Manure-pit	85.00
Painting	125.00
Total	$1,377.00
Architect's fee	68.55
	$1,445.85

HOUSE FOR E. B. WARD, ESQ., NEWARK, N. J. A. MORRIS STUCKERT, ARCHITECT, NEWARK. N. J.

THIS house has recently been finished. It is built of selected Hackensack brick, laid in red mortar; has slate roof with galvanized-iron cresting and finials. The interior is finished with white-wood stained mahogany, and has a cabinet finish. The stairs are solid cherry, and the vestibule of quartered oak, with tiled floor. The mantels are of hard wood, cherry and ash. The entire cost is $11,000.

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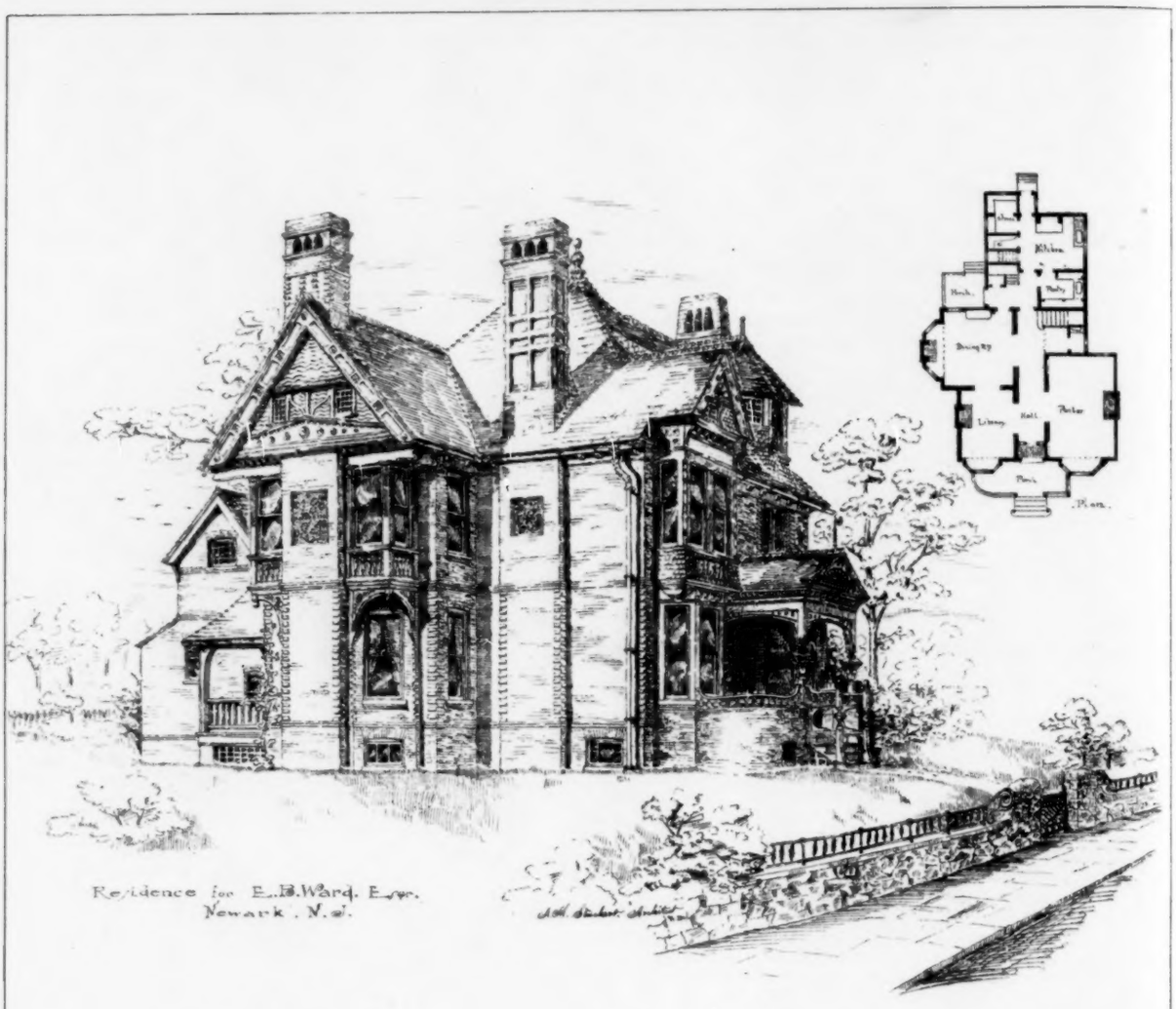
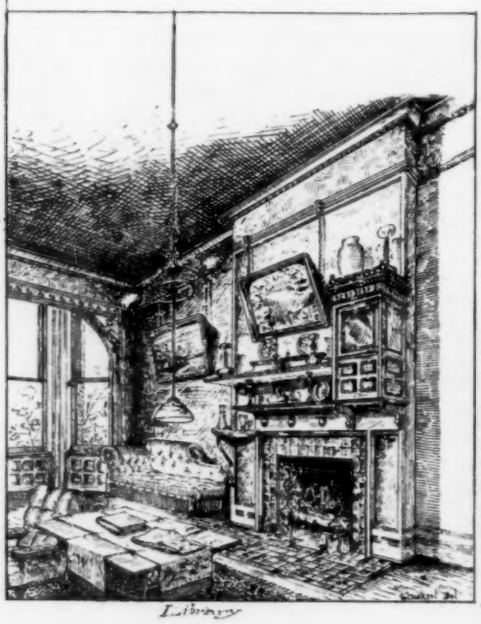
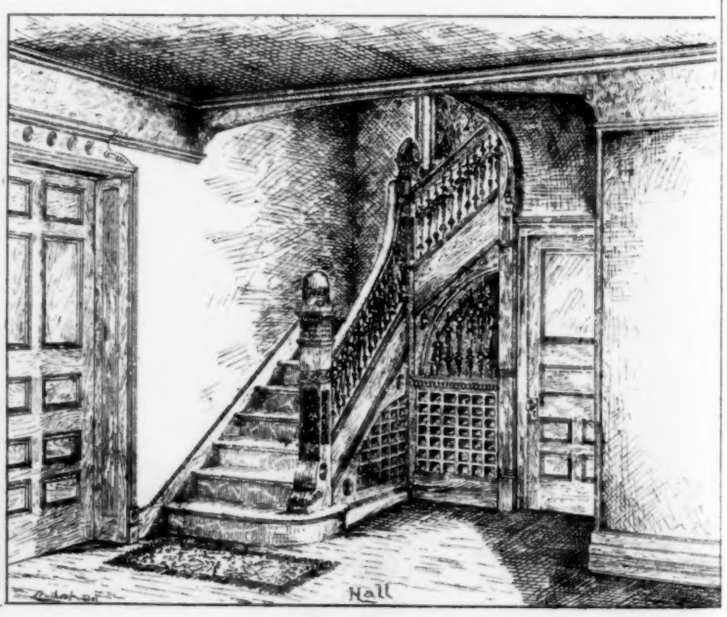


Residence for E. B. Ward. Esqr.
Newark, N. J.



Library



Hall

Interiors of House for E. B. Ward Esqr

A. Morris Stockert
Newark N.J. Archt

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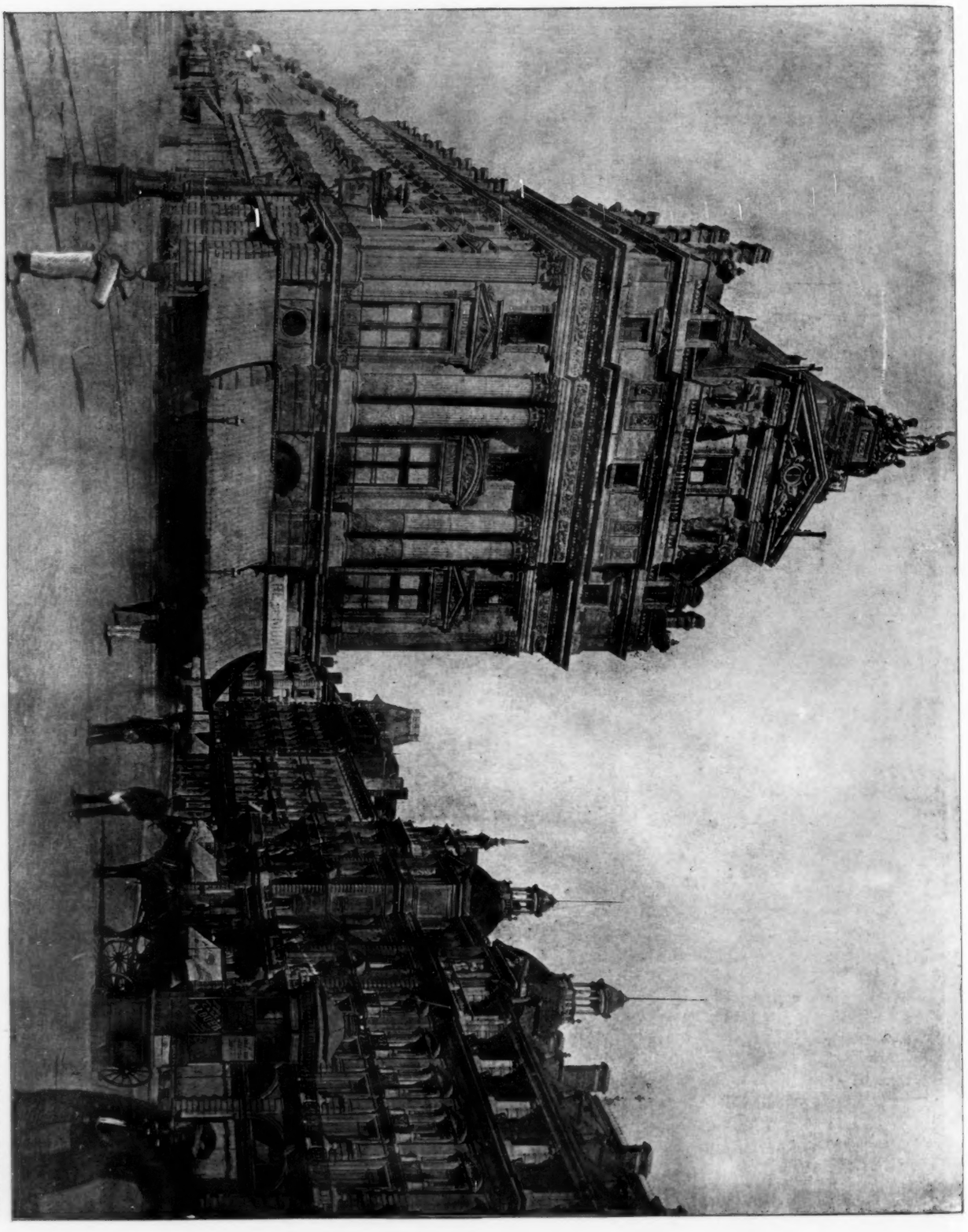

Continental Hotel, Brussels, Belgium. – 1884.

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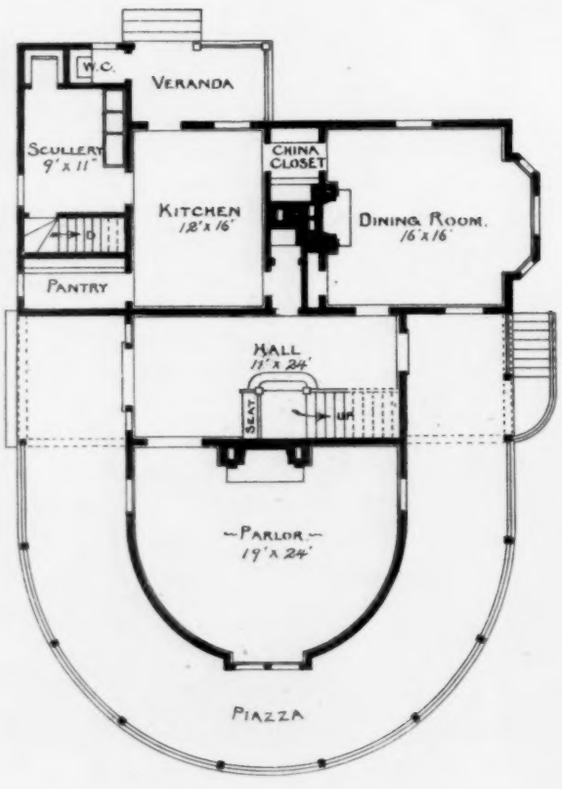
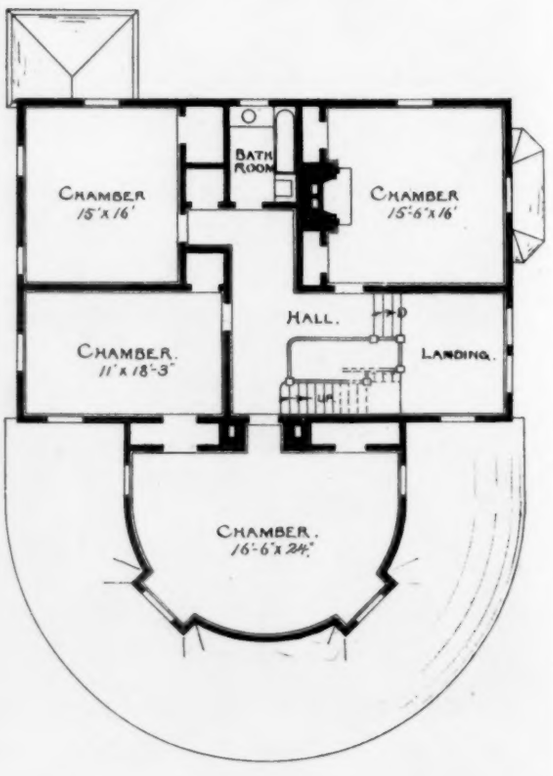


First Floor Plan



Second Floor Plan

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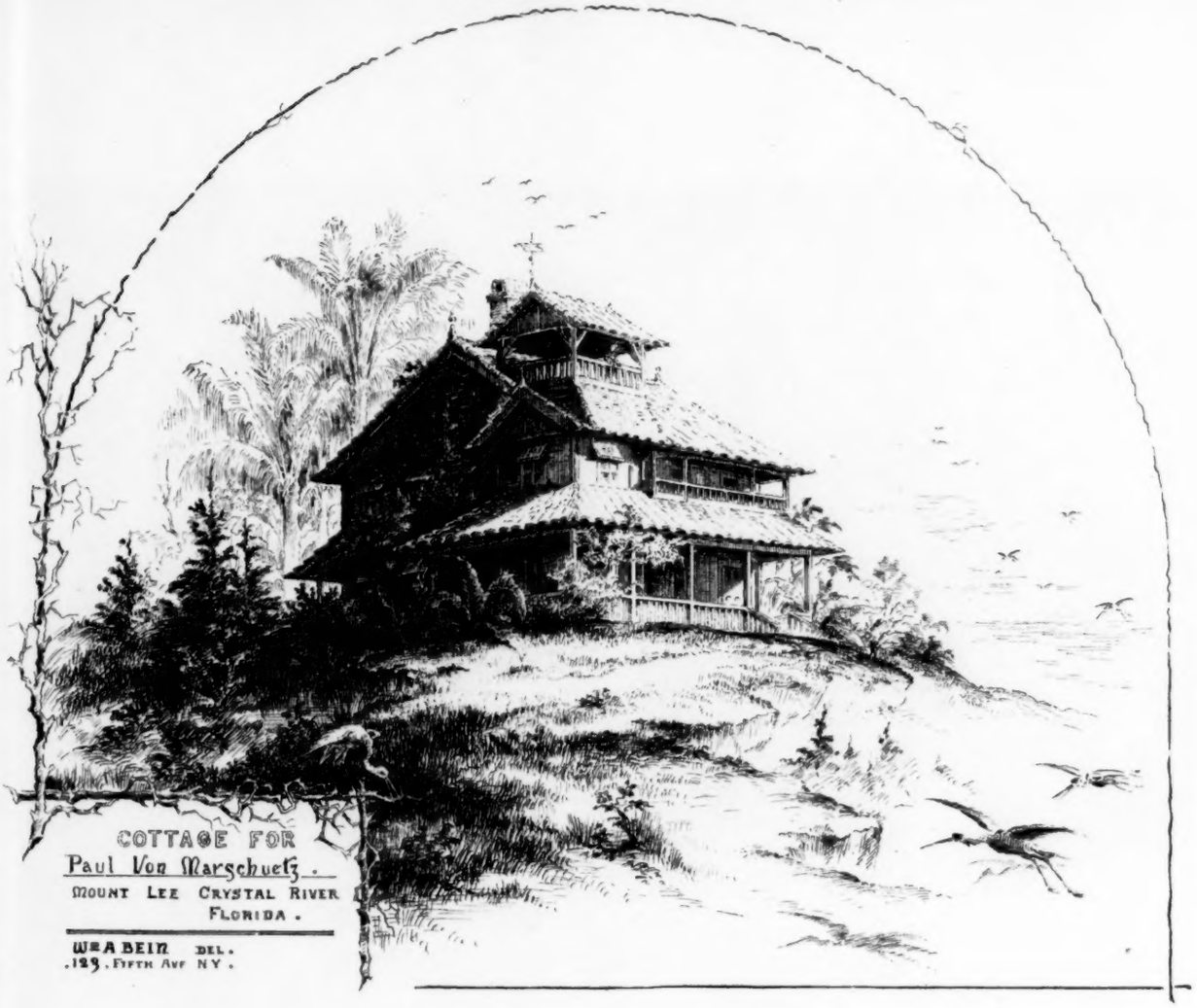

Double House for Henry Wick.
Cleveland, Ohio.

Clarence Oliver Arey,
Architect.

HELIOTYPE PRINTING CO. BOSTON.

New City Hall, Vienna, Austria – 1884.

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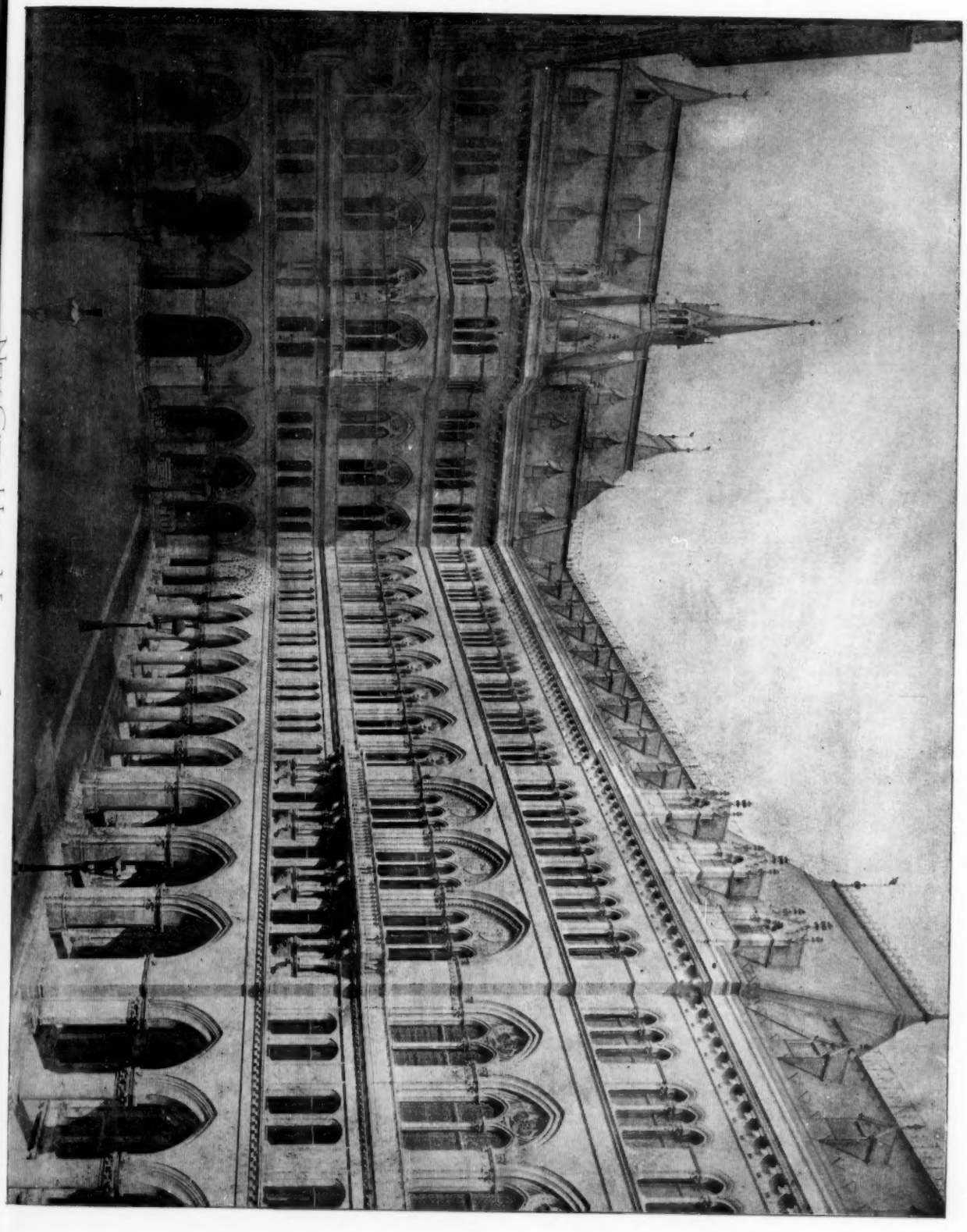

New Court Hall, Vienna, Austria.—1884.

HELIOTYPE PRINTING CO BOSTON

American Architect and Building News, May 9 1885 No. 439

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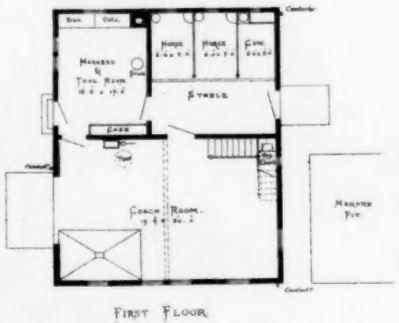
American Architect Competition.

A Country Stable

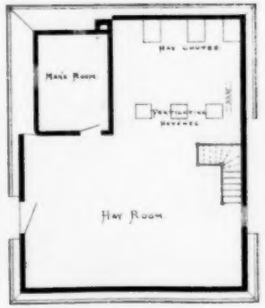
By "Old Apple Tree."

Perspective View.

End Elevation. Rear Elevation. Transverse Section.

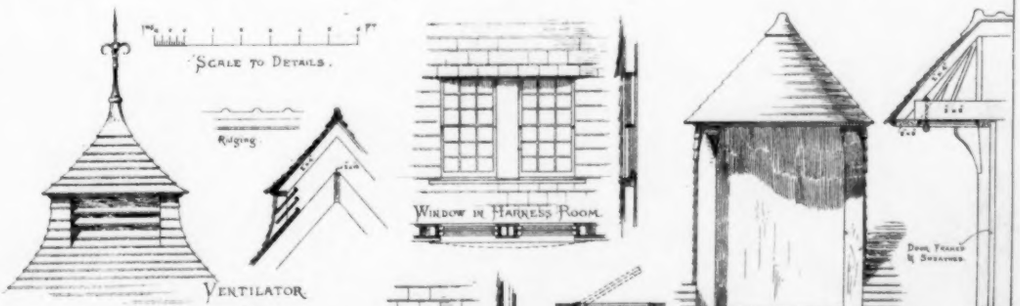


First Floor

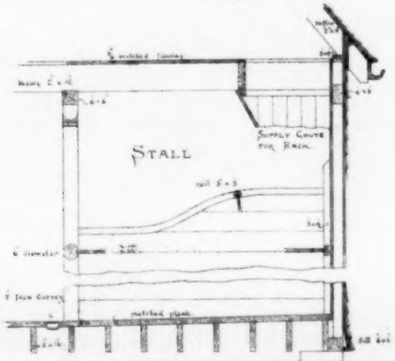


Second Floor

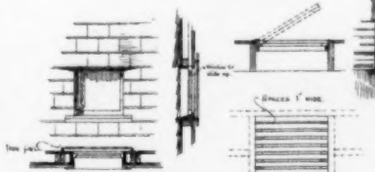
Scale to Plans and Elevations.



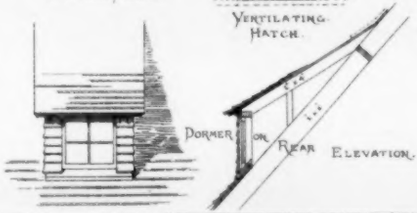
Scale to Details. Ridging. Ventilator. Window in Harness Room. Hay Lift. Door Framed & Sheathed.



Stall. Supply Chute for Rack.



Stable Window. Ventilating Hatch. Sliding Doors in two pieces Framed & Sheathed.



Dormer or Rear Elevation.

Chimney Cope.

HELIOTYPE PRINTING CO. BOSTON

HOUSE AT SWAMPSCOTT, MASS. MR. SAMUEL J. F. THAYER, ARCHITECT, BOSTON, MASS.

THIS house was built at the junction of Atlantic Avenue and Orient Street, last year. The construction account shows its total cost to have been $7,617.90.

COURT-YARD OF THE RATH-HAUS, VIENNA, AUSTRIA. HERR FRIEDRICH SCHMIDT, ARCHITECT.

SEE in the *American Architect* for July 19, 1884, the article on the "New Buildings of Vienna."

THE CONTINENTAL HOTEL, BRUSSELS, BELGIUM.

COTTAGE FOR MR. PAUL VON MARSCHUETZ, MOUNT LEE, CRYSTAL RIVER, FLA. MR. WM. A. BEIN, ARCHITECT, NEWARK, N. J.

HOUSE FOR HENRY WICK, ESQ., CLEVELAND, O. MR. C. O. AREY, ARCHITECT, CLEVELAND, O.

PLASTER IN SCULPTURE. — I.

THE wide-spread interest now taken in art matters is general, but especially the attention which is being devoted to the collecting of reproductions of great masterpieces of sculpture, emboldens me to beg space in your columns for a few facts concerning plaster casts and their use as a medium of artistic expression. Even in the glorious days of classic art this usage was not unknown. In an old Greek workshop in Sicyon, in the age of Alexander the Great, casts were taken from the living face, according to story, with a view to exact portraiture, and artistic remains in plaster discovered of late years on Greek soil show that plaster casts at that time embraced a still wider range and were employed for ideal subjects. Several centuries later, could we have looked into the libraries of Roman philosophers who were too poor to indulge in marble or bronze, we should have found them decorating their book-shelves with busts in plaster of their great forerunners — Plato, Democritus, Zeno and others. During the following age, the one between these philosophers and the revival of art in the fifteenth century, there is great obscurity as to the use of casts in plastic art. If, however, we could have visited, about the middle of the fifteenth century, the workshop of the quaint Florentine master, Andrea Verrochio, we should have found him studying nature through this medium. By 1531, less than a century later, plaster casts of celebrated Roman statues were transported from Italy to far-off France, to decorate the capital of Francis I. In the days of Louis XIV, the agents of that monarch, artists and skilled workmen, collected in Rome similar reproductions of the finest statuary there, and how ambitious their task appears from the fact that they brought back the huge bulk of Trajan's column cast in metal! But the munificence of two citizens of the Venetian Republic appeals still more strongly to us Americans. We do not know the name of the patrician who, in 1670, opened to students the ground-floor of his palace, supplied with casts, but it was Filippo Farsetti, who, in the eighteenth century, carried out this plan on a more generous scale. This noble Venetian, in the course of his extensive travels, collected casts of the then known sculptural works of antiquity, and placing them in his sumptuous palace, threw it open to the use of the public. His hope that it would elevate the taste of his townsmen could not have been disappointed, for in the dry old archives it is pleasant to find that the palace was much visited, and that there many artists studied. Out of these generous acts there sprang in time the present Academia delle Belle Arti, thus making all lovers of Art, of a later day as well, debtors to these public-minded old Venetians. How wide-spread was the appreciation for reproductions of antiquity in casts during the last century appears also from the intense activity of Raphael Mengs. This artist sent to Charles III, of Spain, for the Escurial, one hundred and twenty great boxes, containing casts of many statues in Rome, and for his own private use made a still larger collection, numbering eight hundred and thirty pieces. After his death these passed into the hands of Frederick Augustus, Elector of Saxony, who removed them to Dresden, where they formed the nucleus of the present stately collection, and inspired such great men as Lessing and Goethe. Seats of learning, too, had long felt the great importance of ancient monuments, especially in connection with the study of the literature of the past. Wolf, the father of modern philology, in the days before railroads had made transportation easy, borrowed for his lectures at Halle all the monuments he could obtain from Berlin. But such an awkward system of illustration could not long suffice to meet the wants of an advancing science, and in 1827, under the guidance of the great Welcker, Bonn took the lead, in making for its university a collection of casts taken from the best subjects then known. The shining example of Bonn has been followed slowly but surely by the majority of its sister universities in Germany. As concerns equipment and abundance of space, perhaps none have been more generously fitted out than the youngest among them, the new university at Strasburg.

Above all collections of casts, however, towers pre-eminent the one in Berlin, formally opened to the public in 1856. Here classical antiquity alone was first represented, but the art of the Middle Ages and of the Renaissance have since been added. This collection, started in the early part of this century, under the generous patronage of the kings of Prussia, and watched over in its growth by such men as Wilhelm von Humboldt, Tieck, Gerhard, Bötticher, and Conze, has now grown to colossal proportions.[1] It now offers a well-nigh complete survey of all the important sculptural monuments preserved to us from classical antiquity, and the vacancies in other departments are continually being filled. Casts from such gigantic groups as the Farnese Bull and Monte Cavallo Horse-Tamers, from marbles discovered in Greece, Asia Minor or Italy, or found in the numerous museums of Europe, and even from tiny bronzes, all are here. New arrivals continually swell the mighty assemblage, and bring delightful surprises to the eye of the student. Especially in monuments from Greece, the Islands, and Asia Minor is the collection now beautifully rich; no discovery of any importance, whether from the infancy of art, its full prime, or even its decrepit decline, being overlooked.

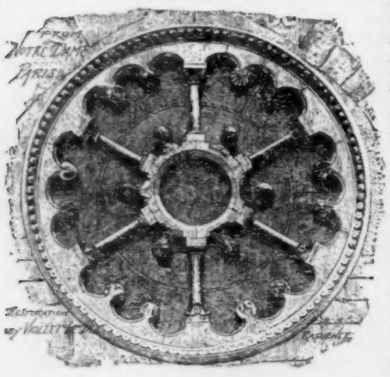
To collect so much art material, not only time and money but much profound knowledge have been requisite. Many able minds have been concerned in the work, and trained scholars have been sent out to superintend these selections, which now, in stately numbers, supplement the originals in the galleries. Thus, in early days, such men as Bunson, the author of that great work, "*Beschreibung der Stadt Rom*," were active in this direction. In later times, Schaubert in Greece, Aumann in Asia Minor, Brunn and Helbig in Italy, Hübner in Spain, and Hittorf in Paris, have carried on the work for Classical antiquity, and many others equally able have represented the art of the Middle Ages and of the Renaissance. The satisfactory arrangement of this vast collection, representing every age of art as well as many mythological subjects, is a work of supreme importance and of the greatest difficulty. A grouping according to mythological families was at first attempted, but was found to be lacking in a firm scientific basis, as well as in elasticity. Accordingly historical grouping, originating with Welcker at Bonn, and followed by all the Continental collectors, is now also employed by the Berlin Museum. But, of necessity, the overcrowded halls do not allow this plan to be strictly carried out, and as the motley assemblage now stands, on entering we find many Roman and Greek portrait-figures and busts, followed by Roman triumphal and tomb monuments. Close upon these comes the stately hall where Dionysius languishes among his merry followers, and where Aphrodite exercises her charms; Niobe and her family are together with the Samothracian Nike, Praxiteles's Hermes, and many other sturdy athletes: the stern Athene shares her circular hall with Heracles, and with the different groups of Menelaus bearing the dead Patroklos. In the Greek *Saal*, temple sculptures from Athens and Ægina keep company with humbler tomb and votive monuments from Greece and far-off Lycia, while in the gallery of the north court are many specimens of very early art, together with the most recent and varied acquisitions from Asia Minor. Fully to satisfy scientific demands, the collection soon required a reliable and full catalogue. This was completed by the lamented Friederichs in 1868, under the title, "*Building-Stones for the History of Art*," and the wide-spread use made by scholars of this modest but gracefully erudite volume has long since proved its right to such a name. The collection has, however, so lustily outgrown the limits of Friederichs's work that his guide has recently been much enlarged, and offers, when used in connection with the monuments, an unrivaled means of education and entertainment.

Great importance is well attached to the faultinesses of the execution of all these casts. The raised lines, which always show the union of the different pieces of a mould, are never removed, for fear of injury to the surface, but are kept as fine as possible, so that, in most cases, only close inspection will reveal the gossamer-like threads. As many valuable objects in different parts of the world were not to be had in casts, the Berlin Museum early took the most praiseworthy but costly step of having moulds of all these formed and sent to Berlin. The casts made from these were primarily intended for the museum, but many have been generously presented to poorer institutions, and others sold. In consequence of the great development of the institution, the single room which originally formed the workshop has now grown to an extensive factory and storehouse, called the Formerei, and occupying a large quarter in old Berlin. Plaster-of-Paris, the material used, is, as is well-known, easily disfigured, harboring with greedy hospitality every particle of dust. The feather duster, in constant requisition in most museums, causes the cast soon to become so spotted and mottled that it is impossible to restore its pristine purity without destroying the fine outlines and characteristic surfaces which go to make up the very soul of the work of art. In view of such inherent weaknesses in the material, the Berlin Museum authorities have sought for some method of protecting their collection against its insidious enemies. To this end it was not unusual, many years ago, to paint the whole surface of each fresh cast with a coating of light oil-color. This could be washed

[1] *Vid. Zur Geschichte du Königlichen Museen* in Berlin. *Fest Schrift zum Feier ihren fün fzig jährigen Bestehens am* 3 *en* Aug. 1830. pp. 123.

with soap and water; but alas, it hid every fine tracery of veins and inimitable delicacies of surface treatment, so often the great charm in ancient monuments. Finally, however, chemistry was called in to their aid, and following up studies made by Reissig, Leuchs and Filsinger, Herr von Dechend has at last succeeded in producing a liquid which, on being applied with a machine of his own invention, makes the frail cast durable and capable of being constantly cleaned, without the slightest detriment to its artistic worth. With this remarkable discovery the last great step has been taken toward rendering casts a most desirable acquisition. The machine used is small and easily wheeled from place to place in the museum, where it may be seen every Monday doing its weekly cleaning. On other days it is employed for the more serious work of preparing the new casts for their place in the collection. This is done by saturating with a chemical solution, applied in the form of spray. This process, while hardening the plaster so that it becomes resonant like bell-metal, and impervious to dust and moisture, does not change the bulk of the statue in the least, and hence leaves unaltered every delicate form and outline. For supplying the immense demands of so large a collection, it is of course impossible to use in every case the most expensive kinds of plaster, and it is a fact that the grain of many monuments in Berlin plaster is not as fine as that of others made from the plaster coming from Paris, without doubt the finest material in trade, while that coming from Munich ranks next. In the Berlin Museum are also casts from many other parts of the world, another reason for the great variety in the plaster represented. Von Dechend's experience has been that the finer the quality of the plaster the more perfect the effect produced by his new process, and hence slight variations in color and smoothness noticeable among the monuments of the Berlin Museum. After the cast is thus prepared for its public life, it requires, for two decades at least, only an occasional dusting to keep it in pleasing condition, and the application of Von Dechend's treatment with chemicals will at once bring back its former purity. In dusting, the new machine is again brought into requisition, attacking each object with a powerful current of compressed air. It is interesting to watch the best secreted particles of dust start guiltily from their hiding-places when this searching stream finds them out. But more remarkable still is the effect upon a painted and sorely soiled cast when there is applied to it by the same machine Von Dechend's "mineral soap." Now the dirt rolls off in such masses that one fears for the delicate forms underneath. But after the final cleansing stream has passed over the surface, we are convinced of the groundlessness of our apprehensions, and possibilities for the use of plaster, not only in enriching public collections but also in beautifying house decoration dawn upon us as never before. The fact that this one machine in Berlin is obliged to do triple duty, being used in the Formerei, the Royal Museum and the Gewerbe Museum, is a further proof of its efficiency.—*Lucy A. Mitchell in the New York Times.*

ON DRY-ROT IN WOOD.



In the Public Health Section of the late meeting of German Naturalists and Physicians at Magdeburg, Dr. Poleck, professor at the University of Prague, read an interesting paper on the life history of the fungus known in this country as "dry-rot," and by botanists as *Merulius Lacrymans*, the ravages of which have of late years assumed alarming proportions wherever the building of new houses has been extensively carried on, but in Germany especially have become a question of almost national importance. For its prevention a knowledge of its life history and habits is absolutely necessary, and these researches may also serve to explain the curious fact that, while it rarely attacks the timbers of the oldest buildings, it has seriously endangered the stability of many erected within the last few years.

Its original *habitat* is not known, for it does not attack living trees, nor is it ever seen in decaying wood in forests. It is found, so far as we are aware, only in the timber of houses, chiefly, if not exclusively, in deal and pine. The name "dry-rot" is not quite appropriate, for a certain dampness and darkness are necessary for the development of the spores. These give origin to a mycelium of elongated cells, which spreads with surprising rapidity, covering the surface of the timbers and walls with fan-shaped expansions, and penetrating the cylindrical fibres and cells of the wood, break it down by a chemical action into a light brittle mass. Complete desiccation of the mycelium permanently destroys its vitality. Though at first developing only in the dark, it seeks the light for the purpose of sporiferation. The sporangia, which have a reticular structure, vary in size from that of a lentil to that of a shilling, and exhibit a somewhat concentric arrangement of cushiony folds, at first of a wine red, and lastly of a dirty brown color, when they exude drops of a clear fluid, whence the specific name of *lacrymans*. After emitting vast numbers of cinnamon brown spores, not more than .01 mm. in diameter, the sporangia become black, dry up and die.

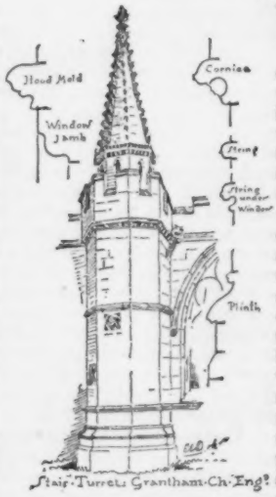
In the art schools attached to the Breslau Museum the mycelium has spread from the foundations to the wall plates, and the casts and models are covered with the dust-like spores. Some of the threads have been found to measure as much as five or six yards in length. Dr. Poleck has not succeeded in cultivating it artificially, but another investigator, who has not yet published the result of his experiments, is said to have been more fortunate.

The chemical composition of the *merulius* does not differ much from that of similar fungi. The water varies from fifty to seventy per cent, while of the dry substances five per cent is nitrogen and fifteen fat. There are, besides, acids, a bitter substance, and indications of an alkaloid. The mineral constituents, among which potassium and phosphoric acid are the most important, throw more light on the action of the fungus on the wood, which, as we have said, is not properly decay, but a chemical disintegration in consequence of the abstraction of these elements of its composition. As these are exhausted, the mycelium spreads outwards, much in the same way as the so-called "fairy-rings" are formed.

A clue is thus afforded to the increased prevalence of dry-rot of late years. It is well known that to facilitate the removal of the bark the practice of felling timber during the spring and early summer has become very general, and analysis has shown that the wood of coniferous trees at that season, besides being more watery and difficult to dry, contains five times as much potash and eight times as much phosphoric acid as in winter, conditions highly favorable to the development of the fungus.

If the use of such wood cannot be avoided it should be thoroughly seasoned and dried, if need be, by artificial heat. The use of old building materials should be shunned, and infected or supected wood be burned. In the absence of experiments on the artificial cultivation of the *merulius* we are without any exact knowledge of the relative value of the several reputed preservatives, but since dampness is an essential condition of its growth, the importance of maintaining the utmost possible dryness of foundations, joists, and floorings by means of concrete or asphalt, *efficient* damp-proof courses, and thorough ventilation, is obvious. It is scarcely necessary to observe that the treatment of wood-work with arsenical or mercurial solutions is fraught with the gravest dangers to health, however successful in their immediate object. If chemical preservatives must be used they should be restricted to one or another of the products of the distillation of tar though in this, as in other things, prevention is better than cure.

REFLECTED SOUND IN BUILDINGS.



Various instances are given of the mixture of direct and reflected sounds. In the gallery of the Bourse at Paris the confused vociferation of the multitude below is mentioned by Professor Tyndall, who says, You see all the motions of their lips as well as of their hands and arms; you know they are speaking, but you hear them not. Their voices mix with their echoes into a chaos of noise. It is well known that an audience and furniture both materially deaden the echo. Thus the same authority refers to a lecture delivered in the Senate House of Cambridge, where his voice was not heard at a distant part of the hall. "The assembled audience, however, so broke up and quenched the sonorous waves, that the echoes were practically absent, and my voice was plainly heard in all parts of the Senate House." In St. Alban's Cathedral, the tick of a watch can, it is said, be heard from one end to the other.

In Gloucester Cathedral, a gallery of an octagonal form conveys a whisper 75 feet across the nave. The whispering-gallery of St. Paul's is a well-known instance of echoes. The well at Carisbrook Castle, in the Isle of Wight, which is 210 feet deep and 12 feet wide, lined with smooth plaster, is a wonderful conveyer of sound; a pin dropped into the well can be distinctly heard. Sound is not only reflected, but is refracted like light, and may be condensed; it can be diffracted or bent round obstacles. Echoes are reflected waves. Echoes may be prevented by cutting off the angles of the room with drapery, by wires stretched across the room to break the waves of sound, and, in fact, by any device which will interrupt the reflection of the sound waves. The method of demonstrating the reflection of sound is by the use of two parabolic reflectors placed opposite each other with their centres in a line; a sounding body is placed in the focus of one of the reflectors, and the sound waves striking the nearest reflector are thrown by reflection to the farthest reflector, and is then concentrated to its own focus, so that an ear placed in this

second focus distinctly hears the sound made at the initial point. A vertical wall without break behind the sound and not far removed from its source, resembles a reflector, and is sufficient to cause an echo. Either a recess or a gallery may tend to break this reflection. Unfortunately treatises on sound seldom enter into the question of the means to be taken to remedy echo or promote the transmission of sound in buildings. In large assemblies the principle of the isacoustic curve, one of equal seeing and hearing, appears to give the best results in the arrangement of the seats of the auditors. — *The Building News.*

SUB-LETTING PLUMBING CONTRACTS.

THE Cincinnati Chapter, A. I. A., at a meeting held April 28 resolved to endorse the action of the Boston Chapter in reference to the Stockslager Bill reorganizing the office of the Supervising Architect.

The following correspondence will explain itself.

CINCINNATI, O., February 18, 1885.

TO THE CINCINNATI CHAPTER OF ARCHITECTS: —

Gentlemen, — Knowing that whatever can benefit the building trade is of interest to you, and that your members have to a great extent the direction of that trade, we beg to call your attention to what we consider to be an evil, which with your aid we wish to abolish, viz.: The sub-letting of plumbing work. This system, which has been carried on for years, is in our opinion a prime cause of the great amount of imperfect plumbing which has been and is being done; plumbing which is a discredit to all parties concerned — yourselves included — and which has damaged the health and caused the death of many of our fellow-creatures. Sub-letting is, in our opinion, merely a shifting and weakening of the responsibilities for the work, which responsibilities should rest alone with the plumber and the owner, or his architect. But when one party plans the work, another contracts to have it done, and another to do it, and all without competent and disinterested supervision, the way is open for the continuance of those evils which we wish to abate, and with which you are doubtless fully acquainted. It is our desire that the system which produced such poor results in the past, and which is coextensive with the trade itself, should cease; and we respectfully ask your aid and coöperation to that end by your withholding the plumbing from the specifications to be bid on as a lump, or in such other manner as in your judgment would best bring about the desired result. This matter has not only claimed the attention of the plumbing fraternity in this city, but of the plumbing associations of every city of importance, and the plumbers of London, England; of Chicago, Rochester, Buffalo, Milwaukee, San Francisco and Brooklyn have resolved not to sub-contract in the future.

Hoping the above will meet your approval and receive your hearty coöperation, we are, Respectfully yours,

THE MASTER PLUMBERS' ASSOCIATION OF CINCINNATI AND VICINITY.

CINCINNATI, O., May 2, 1885.

TO THE MASTER PLUMBERS' ASSOCIATION OF CINCINNATI: —

Gentlemen, — Your communication of February 18 was duly received, and laid before our Chapter at its last meeting. As we understand it, you desire that the plumbing shall be bid on by plumbers, separate from all other work, and directly to the owner or his architect, and that the contract shall be directly between the plumber and the owner, without the intervention of a third party, thus placing the responsibility of good plumbing directly upon the plumber, where it belongs.

Taking the above view of the matter, the architects are in full accord with your desires, and have used and will continue to use all proper means to obtain the desired results.

Yours respectfully,

CINCINNATI CHAPTER A. I. A.,
CHARLES CRAPSEY, Sec.

MISTAKES IN PLUMBING.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs,—In your issue of April 18, you name thirty-nine "mistakes in plumbing." MAY I ask you to answer a few queries in reference to some of them. First as to No. 1: Why do you object to putting a trap at foot of soil-pipe? 16. What do you mean by "neglecting to trap leaders?" 17. Why do you object to "connecting branch-wastes with water-closet trap, particularly when separately trapped and vented?" 27. "Using lead for lining tanks for storage for domestic purposes." Do you mean that this is objectionable where it is used for bathing purposes or cooking purposes, or both; and what would you substitute? By answering the above you will greatly oblige, "IGNORANCE."

[ALTHOUGH "Ignorance" has read the article he mentions so carelessly as to attribute the formulation of the thirty-nine "mistakes" to ourselves, instead of to Mr. Murphy, the lecturer before the New York Trade School, we will answer his questions, while disclaiming all responsibility for the enunciations which call them out. 1. We presume that Mr. Murphy belongs to that small class of specialists who believe it well to omit the trap at the foot of the soil-pipe, for the sake of ventilating the sewers 16. The "leaders" which are to be trapped we suppose are rain-water down-spouts connecting directly with the sewer, and yet having their gutter-opening near an attic window. 17. One proper trap, properly ventilated, is sufficient on a branch-waste. To run it into a water-closet trap is a needless double-trapping; it retards the flow and scour of the discharge through the waste, and, usually entering the trap at slight grade, the foul matter in the trap can stand and settle in the waste-pipe, thus greatly increasing its initial foulness. 27. Lead should not be used for water-tanks the water of which is to be used for cooking or drinking, particularly if it is cistern water. The best tanks are of slate, tinned copper, asphalt, or one kind or another of composition lining. —EDS. AMERICAN ARCHITECT.]

COMMISSIONS. — RESPONSIBILITY.

EL PASO, TEX., April 18, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Gentlemen, — You would oblige by giving an answer to the following questions: —

1. A hotel was planned two stories in height above a basement. The plans were all complete, accepted, and work commenced thereon, when the owners decided to add a third story. This necessitated another elevation-plan, and changed the balance of floor-plans more or less. Does the percentage in this case on the whole cover the extra work in changing the plans also? If not, what extra percentage are the changes worth?

2. Is the architect responsible when the hearth of a fireplace is improperly laid, or the contractor? Respectfully, E. K.

[1. IT would be impossible to frame a rule for percentages to cover all cases of extra work on the part of the architect. The best way is to keep a record of the time of every person employed in the office of the architect, dividing it every day according to the number of hours during which each worked upon the different commissions in hand. In this way, by adding up the cost of labor and other items required in the alteration of the plans, the fair price for the work could easily be ascertained, and easily collected, if necessary.

2. The architect is in no way responsible for defective work of any kind on the part of the contractor, unless its defects followed from faithfully carrying out erroneous drawings and specifications made by the architect, or from obeying his injudicious orders. If the architect should neglect to give reasonable attention to the supervision of the work, so that the contractor fell innocently into errors for want of directions, the former might be held responsible for the consequences, in a degree varying according to the extent of his failure to give reasonable and ordinary attention to his business; but for the bad execution of work which he agreed to do well, the contractor, and only the contractor, is responsible. — EDS. AMERICAN ARCHITECT.]

MILFORD, April 28, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — A certain town appoint a committee to obtain plans, specifications and details for remodelling a town-hall, and also actual estimate of the cost of the same from builders. The architect is selected by the committee without any agreement as to his commission. He makes plans, specifications and details and receives tenders; his plans for remodelling are unanimously recommended, the estimated cost of same fourteen thousand dollars. A majority vote in favor of remodelling, but fail to get the two-thirds vote required by law to raise money to pay for the same, and consequently there is nothing further done. Now, what percentage upon the estimated cost would be proper for the architect to charge under such circumstances?

SUBSCRIBER.

[THE customary charge in such cases is three-and-one-half per cent on the estimated cost of the building. — EDS. AMERICAN ARCHITECT.]

THE HEIGHT OF THE WASHINGTON MONUMENT.

NEWPORT, R. I., April 8, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you, through the columns of the *American Architect*, give the exact height of the Washington Monument as completed? A discussion here has shown much diversity of opinion on the subject, and the published accounts differ materially. Your correspondent of February 17, Mr. Desmond Fitzgerald, states that the "top of the monument as it now stands is 555 feet above its base, which, exclusive of its concrete foundation, is about 55 feet square." This does not seem to establish clearly this base as the ground-line. Kidder — "*Architect's and Builder's Pocket-Book*," lately published — gives the height as 542 feet — a difference of 13 feet in altitude. Does the height as given by Mr. Fitzgerald commence from the top of the concrete underpinning? If so, it must be some distance below the finished grade-line.

Thanking you in advance for your attention to the matter, I remain, Very truly yours, GEORGE C. MASON, JR.

[MR. FITZGERALD gives the following measurements as exact: As finished, the structure is 555 feet 5 1-8 inches in height above the ground-line, or top of the foundation. The topmost point is 597 feet 3 inches above mean low water in the Potomac. EDS. AMERICAN ARCHITECT.]

DEAFENING FELT. — RE-BRONZING ZINC METAL.

MILFORD, April 28, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — If not too much trouble would like answers to the following questions: —

1. What do you consider the best brand of felt for deafening floors?

2. Can you give me directions for re-bronzing a fountain? the fountain is made of zinc. Yours respectfully,

FRED SWASEY.

[1. WE know of no reason for recommending any particular brand of deafening felt. Our personal preference is for the soft cane-fibre felt.

2. The fountain is probably colored by varnishing with any water-proof

varnish, tinted with burnt sienna or asphaltum, or a mixture of both, so as to give the required shade. The projecting portions are perhaps touched with copper or gold bronze. There are many ways of bronzing white metal, but the varnish, although giving a coarse effect, is most likely to be used for such a purpose. Perhaps some maker of iron statuary would be able to give more exact directions. — Eds. American Architect.]

ON LIGHTNING-RODS.

Boston, Mass., May 2, 1885.

To the Editors of the American Architect: —

Dear Sirs, — Your correspondent in last *American Architect* will find the report of the Lightning-Rod Conference (published in 1882, London, E. & F. Spon, — also 446 Broome Street, New York) the most exhaustive work on the subject of lightning-rods. It includes an abstract of Spang's book, as well as many others; also, testimony from all parts of the world. Yours, F.

A DILEMMA.

Ashbourne, Pa., April 27, 1885.

To the Editors of the American Architect: —

Dear Sirs, — Most of, if not all, the plans for stables sent you are liable to grave criticism in this way: If the man sleeps over the stalls his health (and temper) suffer [See Mayhew, *passim*]. If the hay is stored over the stalls it also is poisoned by the ammonium carbonate emanations. Please draw your own conclusions.

Sincerely yours, M. C. Lea.

NOTES AND CLIPPINGS.

Heidelberg Castle. — The commission appointed to examine the foundations of Heidelberg Castle which were reported caving in on account of the railway tunnel beneath them, says it finds the foundation of the Otto Heinrich's wing in perfect condition and the Findrich wing the same, so far as examined. The report was apparently more shaky than the foundations. — *Philadelphia Press.*

Some Boston Buildings. — Will coming generations believe that the Bedford and Washington Street fronts of R. H. White's establishment — the one strong and dignified, the other fussy and weak — were designed by the same person; or that the same owner erected the Ames Building on Harrison Avenue Extension and that on the western corner of Bedford and Kingston Streets; or that the same era produced the last-named building and the one opposite — the first strong, majestic, beautiful, with more of the true principles of architecture in its composition than any other street front in America, a whole volume for the student's study, the other like a bonded warehouse on stilts? Or will it readily be believed that the same architect designed said warehouse on stilts and the Providence City-Hall? Will they believe it possible for the same day and generation to have produced Trinity Church and the new Hollis-Street Church? Or that connoisseurs, interested in and desirous of promoting art, could have selected or approved of such an experiment in terra-cotta as the Museum of Fine Arts, or have adopted such a style of architecture for a museum of fine arts under any consideration whatever? Will they believe that an institution like the Massachusetts Institute of Technology erected buildings of such vast difference in architectural merit as the two on Boylston Street, the one a really good example of architectural work, with one of the finest Corinthian porticos of any age or time; the other out of place, and ill-befitting a great school pretending to foster and to teach the art of Architecture? — *J. L. Faxon in The Spectator.*

Missouri's Buried City. — The amusing fabricator of absurdities who ran such a rig in the West a few years ago seems to have recovered his nerve, to judge by the following, which appears in the New York *Times* of April 8. The city of Moberly, Mo., is stirred up over the discovery of a wonderful buried city, which was discovered at the bottom of a coal shaft, 360 feet deep, which was being sunk near the city. A hard and thick stratum of lava arches-in the buried city, the streets of which are regularly laid out and inclosed by walls of stone, which is cut and dressed in a fairly good, although rude, style of masonry. A hall 30 by 100 feet was discovered, wherein were stone benches and tools of all descriptions for mechanical service. Further search disclosed statues and images made of a composition closely resembling bronze, lacking lustre. A stone fountain was found, situated in a wide court or street, and from it a stream of perfectly pure water was flowing, which was found to be strongly impregnated with lime. Lying beside the foundation were portions of the skeleton of a human being. The bones of the leg measured, the femur four and one-half feet, the tibia four feet and three inches, showing that when alive the figure was three times the size of an ordinary man, and possessed of a wonderful muscular power and quickness. The head bones had separated in two places, the sagittal and the coronal sutures having been destroyed. The implements found embrace bronze and flint knives, stone and granite hammers, metallic saws of rude workmanship, but proved metal, and others of similar character; they are not so highly polished, nor so accurately made as those now finished by our best mechanics, but they show skill and an evidence of an advanced civilization that are very wonderful. The searching party spent 12 hours in the depths, and only gave up explorations because of the oil in their lamps being low. No end to the wonders of the discovery was reached. The facts above given are vouched for by Mr. David Coates, the Recorder of the city of Moberly, and Mr. George Keating, City Marshal, who were of the exploring party. A further extended search will be made in a day or two.

York House Water-gate, London. — Attention has lately been called to the neglected state of the York House Water-gate, and, as very few people know where that monument of the skill of Inigo Jones and of architecture in the period of James I is to be found, it is well that we should supply some little account of it. The present writer had some difficulty in finding it, for so neglected is it that in Bacon's Atlas of London its name is entirely omitted. It was found at last at the lower end of Buckingham street, Strand, half buried in a deep hole, or rather trench, between the precipice in which the street terminates and the new gardens on the Thames embankment. From being one of the ornaments of London it has become the abode of every sort of abomination, and Lord Brabazon was undoubtedly right when he demanded a short time ago through the newspapers that the Board of Works or some other public body should take charge of it. What ought to be done with the gate is a more difficult question. It stood originally on the bank of the Thames, and formed the imposing entrance to York House, which, having been in the reigns of Mary and Elizabeth the town inn or residence, first of the Bishop of Norwich, and then of the Archbishop of York, was granted by James I to George Villiers, Duke of Buckingham, who rebuilt it in a magnificent manner. A contemporary drawing by Hollar is among the treasures of the Pepysian library at Cambridge. The great interest attached to the gate is not so much for its architecture as for its situation. Of all the buildings represented in Hollar's drawing, made about the middle of the seventeenth century, nothing remains except this gateway. It then stood proudly on the river's bank, now the river has been driven away by the Thames embankment to a distance of about 130 yards, and the gateway is as completely buried as the Arch of Severus in the Forum of Rome, and indeed we hear that its existence is still further threatened by the proposed railway from Euston to Charing Cross, and it seems likely that it may have to be moved at last. Let us then pursue its history a little farther. The palace of the Duke of Buckingham had but a short life; it was pulled down after the Restoration, and the site laid out in several streets which still retain the position and the names which were then given to them. George court, Villiers street, Duke street, and Buckingham street preserve the name and title of "Steenie" and his son, and so careful were they to commemorate the whole title that the alley which led from Villiers street to George court, parallel to the Strand, was named Of-alley, and retained that name until the end of the last century. Of-alley is now called York place.—*Pall Mall Gazette.*

Effect of Earthquakes on Buildings. — Mr. John Milne, of Tokio, Japan, has published some observations of the effects of earthquakes on buildings. In regard to the relative security of buildings on low and on high ground there is no universal rule, but each small area in an earthquake-region has its peculiarities. Theory indicates that soft, marshy ground is safer, because it will act as a buffer between the shock and the building; and the Temple of Diana, at Ephesus, was located with reference to this point. But experience at Tokio and Manila has shown repeatedly that there is very little, if anything, in it; and hard, rocky strata, where the amplitude of motion is small, but the period quick as compared with the motion in the inelastic material of the plains, proved the better foundation in Jamaica in 1692, and at Lisbon in 1755. Places to be avoided are the edges of cliffs, scarps and cuttings. Europeans fasten the foundations of their buildings firmly in the ground, and their houses are much shaken. The Japanese put their structures loosely on top of stones or boulders, and they escape serious disturbance. Europeans and Americans build iron-bound houses to resist earthquakes, and they resist them, though they get badly shaken, as a steel box would be; but they are very expensive. The Japanese and the people of the west coast of South America build a kind of wicker-basket house — a frame house with a light roof, which lives through the earthquake like "a reed shaken by the wind." The stability of such houses depends upon their not being firmly attached to the earth, and their numerous joints admit considerable yielding, so that the earthquake-wave passes through them before they begin to show its visible effects. A cheap aseismic house would be a low frame building supported by a number of slightly concave surfaces resting on segments of stone or metal spheres in connection with the ground. Chimneys should be given a play-space around them, and not be in contact with the roof; else, since the vibrational periods of the chimney and the roof never correspond, clashes will occur between them, and a shock and overthrow result. The pitch of the roof should not be great, or the tiles or slates will be shot off; and the upper parts of all buildings should be as light as is consistent with strength. — *Popular Science Monthly.*

Evolution of the Elevator. — I do not know, nor does the Encyclopædia afford me any information, when the contrivance called an "elevator" or "lift" was first introduced into public use. I think, however, that it is of very recent origin, except possibly for hoisting freight, etc., when some lifting apparatus has, of course, always been necessary. But the passenger elevator certainly does not go back over half a score of years. It seems rather curious, therefore, to find in the "Greville Memoirs," in the account of a visit to Genoa, made by the author in 1830, the following note: "Called on Mme. Durazzo, and went with her and her niece, Mme. Ferrai, to the King's palace, formerly a Durazzo palace, like the others, a fine house, full of painting and gilding, and with a terrace of black and white marble commanding a view of the sea. The finest picture is a Paul Veronese of a Magdalen with our Saviour. The King and Queen sleep together, and on each side of the royal bed there is an assortment of ivory palms, crucifixes, boxes for holy water and other spiritual guards for their souls. For the convenience of their bodies he has had a machine made like a car, which is drawn up by a chain from the bottom to the top of the house; it holds about six people, who can be at pleasure elevated to any story, and at each landing place there is a contrivance to let them in and out." Certainly this was the precursor of the modern elevator, for it possesses all its essential features — much more so than the passenger car used in the torture-chamber of the Inquisition in the sixteenth century, which took in passengers, hoisted them up, and then had a bad habit of letting them out through the bottom and landing them on sharp spikes without consulting them as to when or where they desired to make a landing. — *Germantown Telegraph.*

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

316,134. METALLIC SHINGLE. — Moses G. Farmer, Newport, R. I.

316,152. ELEVATOR. — Frank S. King, West Brimfield, Mass.

316,172. TILE-TABLE. —George Potts, Indianapolis, Ind.

316,174. SLIDING WINDOW-SCREEN.—John C. Proctor, Wooster, O.

316,175. WOOD FLOORING, CEILING OR DADO.—Alfred Putney, London, Eng.

316,193. SASH-CORD FASTENER.—Henry Smith, Jr., Baltimore, Md.

316,219. FASTENING FOR MEETING-RAILS OF SASHES.—Geo. M. Baker, New Britain, Conn.

316,222. WINDOW-SCREEN HOLDER. — Henry C. Barlow, Dallas, Tex.

316,264. WEATHER-STRIP.—Edwin V. Heaford, Cincinnati, O.

316,265. LATCH.—John W. Helton, Waterloo, Iowa.

316,274. STEAM-HEATING BOILER. —John W. Latimer, Newark, O.

316,278. SOLDERING-TOOL. — James Mactear, Glasgow, Scotland.

316,282. SASH-HOLDER. — Jas. McCormick, Princeton, Ind.

316,283. DOOR-CLOSER. —John McDonald, Middletown, O.

316,284. STEAM-RADIATOR. — Thomas L. McKeen, Easton, Pa.

316,285. FASTENING FOR MEETING-RAILS OF SASHES.—Thos. L. McKeen, Easton, Pa.

316,296. PLANE.—Louis C. Rodier, Detroit, Mich.

316,301. SHINGLE-SAWING MACHINE. — Frank Stahl, Cleveland, O.

316,318. WELL-TUBE FOR DRIVE-WELLS. — Willet C. Wells, Tiffin, O.

316,338. SIDING-GAUGE OR DOG. — Augustus C. L. Davis, Norfolk, Neb.

316,341. BEVEL. — John W. H. Doubler, Rockford, Ill.

316,361. FIRE-PROOF FLOOR.—Wm. B. and Chas. H. Hayden, Columbus, O.

316,375. FIRE-ESCAPE AND WATER-TOWER COMBINED.—Charles A. Lieb, New York, N. Y.

316,376. ELECTRIC BURGLAR-ALARM. — Frank G. Lyon, Jersey City, N. J.

316,397. KILN FOR BURNING BRICKS, TILES, ETC. —Fawcett Plumb, Streator, Ill.

316,413. SUPPORT FOR GUTTERS OF SKYLIGHTS, ROOFS, VAULTS, ETC. — J. Franklin Stuckert, Philadelphia, Pa.

316,415. FIRE-ESCAPE LADDER. —Lorens Swenson, Cresco, Iowa.

316,450. BLOCK PAVEMENT FOR STREETS AND SIDEWALKS AND MOULD FOR CONSTRUCTING THE SAME.—Henry G. Fiske, San Francisco, Cal.

316,452. CUTTING-PLIERS. — Napoleon Gill, Holyoke, Mass.

316,459. ADJUSTABLE BRACKET. — Woodbury S. How, Cincinnati, O.

316,464. PLASTERING TROWEL. — John C. Huther, Rochester, N. Y.

316,487. PAINT-MIXER. — Charles Ross, Jr., Brooklyn, N. Y.

316,493. HOT-AIR STOVE. — Peter H. Sims and Philip Hohmeier, Waterloo, County of Waterloo, Ontario, Can.

316,495. SEAT AND OPERA-CHAIR.— William F. Spencer, Richmond, Ind.

316,517. WINDOW-SCREEN.—William Bateman, San Francisco, Cal.

316,522. STEAM-HEATING RADIATOR.—William W. Carman, Exeter, N. H.

316,529. SHUTTER-WORKER. — Leon O. Dion, Natick, Mass.

316,530. LINE-CHALKER AND PLUMB-BOB.—James L. Downie and Joseph E. Hardin, Allegheny, Pa.

316,538. DRAWING-BOARD. — Seth W. Goodwin, Toledo, O.

316,555. WINDOW-BEAD FASTENER. — Egbert E. Masters and Lavirgne J. Kimball, Sacramento, Cal.

316,567. APPARATUS FOR THE INTERMITTENT DISCHARGE OF SEWAGE, ETC.—George S. Pierson, Kalamazoo, Mich.

316,571. DEVICE FOR CLOSING DOORS.—Nathan H. Richardson, Brooklyn, N. Y.

316,573. SCAFFOLD-BRACKET. — Charles H. Rockwood, Marlborough, Conn.

316,574. DOOR-LOCK. — Robert G. Roland, Beech Grove, Ky.

316,577. SAFETY-BRAKE FOR ELEVATORS.—Friedrich Schnizlein, Munich, Bavaria, Germany.

316,578. EAVES-TROUGH. — Henry H. Schumann and Charles Muth, Troy, Pa.

316,581. FIRE-EXTINGUISHER. — William H. Stratton, New Haven, Conn.

316,582. SASH-BAR.—Herbert A. Streeter, Chicago, Ill.

316,591. KNOB-ATTACHMENT. — Arthur H. Wood, Lansing, Mich.

316,605. HEATING-STOVE.—Americus V. Cook, Dexter City, Mo.

316,620. COMBINED HEATER AND VENTILATOR. — Frank R. Henry, Murfreesborough, Tenn.

316,621. ELECTRIC BURGLAR-ALARM. — John H. Hill, Long Island City, and Joseph E. Babcock, New York, N. Y.

316,627. WINDOW-BLIND SLAT-HOLDER.—William Jensen, Victoria, British Columbia.

316,633. FAN-ATTACHMENT FOR ELEVATORS. — Richard Marshall, Brooklyn, N. Y.

316,643, COMBINED SCAFFOLD AND LADDER. — Fredrick W. Niehaus, McGirk, Mo.

316,705. HINGE AND FRAME FOR VAULT-COVERS. —Michael S. Weller, Charlestown, W. Va.

316,717. NAIL.—John Young, Wheeling, W. Va.

316,757. FIRE-ESCAPE.—George Denison, Princeton Junction, N. J.

316,760. BOLT. — Carl F. Diehlmann, Brooklyn, N. Y.

316,772. HEATING-APPARATUS. — George Gessner, Cumberland, Md.

316,781. CHIMNEY-COWL AND VENTILATOR.—William G. Henis, Philadelphia, Pa.

316,785. HEATING AND SOLDERING IMPLEMENT.—William A. Hoeveler and Charles Keller, Pittsburgh, Pa.

316,822. FASTENING FOR MEETING-RAILS OF SASHES.—Wilhelm Pohlmann, Cleveland, O.

316,853. RAIN-WATER ESCAPE. — Orion De Kay Townsend, Isle St. George, O.

316,861. CHIMNEY-FLASHING. — Titus H. Apple, Meadville, Pa.

SUMMARY OF THE WEEK.

Baltimore.

LIVERY STABLE. — Frank E. Davis, architect, is preparing plans for Collins Stewart, Esq., for a three-st'y brick, with stone and terra-cotta finish livery-stable, 120′ x 220′, to be built cor. Boundary St. and Mt. Royal Ave.; cost, $45,000.

BUILDING PERMITS. — Since our last report forty-five permits have been granted, the more important of which are the following: —

Leander Foreman, 11 three-st'y brick buildings, w s Division St., commencing s w cor. Wilson St.; and 8 two-st'y brick buildings, s s Wilson St., between Division St. and Pennsylvania Ave.

John Kuper, 26 two-st'y brick buildings, e s Calhoun St., between McHenry and Ramsay Sts.

James A. Gary, four-st'y brick warehouse, n s German St., between Hanover and Sharp Sts.

Thos. S. Hughes, 6 three-st'y and basement brick buildings, e s Stricker St., n of Hollins St.

Sally Luntz, three-st'y brick building, n w cor. Bloom and Ettinge Sts.

W. T. Phillips, 6 three-st'y brick buildings, w s Gilmor St., between Fayette and Baltimore Sts.

Jos. M. Cone, 5 three-st'y brick buildings, s s Franklin St., w of Pearl St.

South Baltimore Per. Mutual Life and Saving Association, three-st'y brick building, e s Light St., between Montgomery and Warren Sts.

Boston.

BUILDING PERMITS. — *Wood.* — *Haywood St.*, near Hazel Pl., dwell., 20′ x 42′; owner, Doll. Jameson; builder, H. J. Bartlett.

Dorchester Ave., near Centre Ave., dwell., 20′ and 27′ x 41′; owner and builder, Ira A. Medbury.

Unnamed St., near Boston St., dwell., 22′ and 25′ x 29′; owner, S. B. Pierce; builder, W. J. Jobling.

Unnamed St., near Hamlet St., 2 dwells., 22′ and 25′ x 29′, owner and builder, same as last.

Dorchester Ave., *No.* 317, stable, 30′ x 40′; owner, William Peard; builder, W. J. Jobling.

Brooklyn.

BUILDING PERMITS. — *Kingsland Ave.*, w s, 95′ n Van Cott Ave., 2 three-st'y frame (brick-filled) tenements, tin roofs; cost, each, $4,000; owners, Christ. and Fred. Gerhard, Kingsland Ave.; architect, Th. Engelhardt; builders, Doyle & Brazil and Sammis & Bedford.

Stagg St., n s, 150′ w Waterbury St., 3 three-st'y frame (brick-filled) tenements, tin roofs; cost, each, $4,000; owners and builders, Roeder & Kraemer, Bushwick Ave. and Ten Eyck St.; architect, Th. Engelhardt.

Jefferson St., s s, 490′ e Throop Ave., 8 three-st'y brown-stone dwells., gravel roofs; cost, each, $6,000; owner and architect, William Studdiford, 82 Woodhull St.

York St., s e cor. Hudson Ave., 2 four-st'y brick tenements, tin roofs; cost, total, $10,000; owner, architect and builder, Wm. Taylor, 83 Third Pl.

Flushing Ave., n s, 44′ w Marcy Ave., three-st'y frame (brick-filled) tenement, tin roof; cost, $3,500; owner and builder, Henry Loeffler, 189a Stockton St.; architect, H. Loeffler, Jr.

India St., s s, 160′ e Franklin St., three-st'y frame (brick-filled) tenement, cement roof; cost, $4,500; owner, Alex. De Groot; architect, F. Weber; builders, J. Doig, Jr., and Gately & Smith.

Herkimer St., n s, 300′ e Howard Ave., 13 three-st'y brick dwells., gravel roofs; cost, each, $3,000; owner and architect, Benj. T. Robbins, Northport, L. I.; builder, E. K. Robbins.

North Eighth St., *No.* 110, s s, 150′ w Third St., four-st'y brick tenement, tin roof, wooden cornice; cost, $6,500; owner, John Greany, 88 North Fifth St.; architect and contractor, H. Akerly; mason, J. Mead.

Adelphi St., *No.* 446, w s, two-st'y front, three-st'y rear brick shop, tin roofs, iron cornices; cost, $4,000; owner, James White, 811 Fulton St.; architects, Parfitt Bros.

Vanderbilt Ave., e s, 98′ s Fulton St., four-st'y brick store and dwell., gravel roof; cost, $3,500; owner and builder, Joseph I. Kirby, 73 Gates Ave.; architect, A. Hill.

Bedford Ave., e s, 20′ n Halsey St., three-st'y brick public hall, slate roof; cost, $30,000; owner, Mrs. Kate Anderson, New York; architect and contractor, W. H. Burhaus; mason, E. J. Otis.

Herkimer St., s s, 25′ w Ralph Ave., three-st'y frame tenement (brick-filled); cost, $4,000; owner, John Givens, 177 Stuyvesant Ave.; architect, I. D. Reynolds.

Union St., n s, 109′ e Seventh Ave., 5 three-st'y brown-stone dwells., tin roofs; cost, each, $10,000; owner and builder, John Magilligan, 56 Berkeley Pl.

Vanderbilt Ave., *Nos.* 246 *and* 248, w s, 146′ n De Kalb Ave., four-st'y brick and sandstone tenement, plastic slate roof; cost, about $30,000; owner, Morris Building Co., Phœnix Building, Court St.; architects, Lamb & Rich; builders, T. Donlon and F. D. Norris.

Bergen St., n s, 250′ w Hoyt St., 6 three-st'y brown-stone dwells., gravel roofs; cost, each, $5,000; owner, T. H. Robbins, 178 Garfield Pl.; architect, A. Hill; builder, S. C. Prescott.

Lexington Ave., s s, 100′ e Bedford Ave., 14 two-st'y brick dwells., tin roofs; cost, each, $3,500; owner, Mary E. Hall, 63 Patchen Ave.; architect, C. G. Hall.

Brooklyn Ave., w s, 20′ s Atlantic Ave., 5 three-st'y brick and brown-stone dwells., fire-proof roofs; cost, each, $3,500; owner, Henry W. Sage, Ithaca, N. Y.; architects, Wm. Field & Son; builders, F. Curran and J. Thing.

Brooklyn Ave., s w cor. Atlantic Ave., 2 four-st'y brick stores and tenements, fire-proof roofs; cost, each, $8,000; owner, architect and builder, same as last.

Twenty-seventh St., n s, 125′ e Fourth Ave., 5 three-st'y brick dwells., tin roofs; cost, each, $4,000; owner, Mrs. Matilda Goodwin, 123 Twenty-eighth St.; builder, J. P. M. Goodwin.

Gates Ave., s s, 250′ e Stuyvesant Ave., four-st'y brick store and tenement, tin roof; cost, $9,000; owner, John Wiegel, Gates Ave., n e cor. Stuyvesant Ave.; architect, J. T. Perry.

Third Ave., e s, 100′ s Seventeenth St., three-st'y frame store and dwell. (brick-filled), tin roof; cost, $4,145; owner, Jacob Harding, Third Ave.; architect, H. Skinner; builder, Jno. Sorensen.

Gates Ave., n w cor. Lewis Ave., 5 three-st'y brick stores and tenements, tin roofs; cost, each, $9,000; owner, L. P. McGarry, 583 Monroe St.; architect, J. McGarry.

Marcy Ave., w s, 25′ s Ellery St., 6 three-st'y frame (brick-filled) tenements, tin roofs; cost, each, $4,000; owner and builder, George Straub; architect, Th. Engelhardt.

Stockton St., *No.* 296, n s, 127′ e Sumner Ave., three-st'y frame (brick-filled) tenement, tin roof; cost, $4,000; owner and builder, John Watson, on premises; architect, Th. Engelhardt.

Lynch St., s w cor. Marcy Ave., three-st'y frame store and dwell., tin roof; cost, $3,800; owner, Mrs. Margaret Mulvihill, 155 Lynch St.; architect, H. Vollweiler; builder, N. Mulvihill.

Marcy Ave., n w cor. Park Ave., three-st'y frame store and tenement (brick-filled), tin roof; cost, $5,000; owner and builder, George Straub, 11 Lewis Ave.; architect, Th. Engelhardt.

Shafer St., s s, 120′ w Bushwick Boulevard, two-st'y frame dwell., tin roof; cost, $3,800; owner, Geo. Schwarz, Clarkson Ave., Flatbush; architect, G. Hillenbrand; builder, C. M. Rocker.

Marcy Ave., s w cor. Ellery St., three-st'y frame store and tenement (brick-filled), tin roof; cost, $5,000; owner and builder, George Straub; architect, Th. Engelhardt.

Marcy Ave., w s, 22′ s Lynch St., 3 three-st'y frame tenements (brick-filled), tin roof; cost, each, $4,000; owner, Mrs. M. Mulvihill, 155 Lynch St.; architect, H. Vollweiler; builder, N. Mulvihill.

Columbia St., *No.* 128, s e cor. Degraw St., rear, five-st'y brick store and tenement, tin roof; cost, $6,000; owner, T. B. Woolsey, 1380 Broadway, New York; architect, G. E. Harding.

Hancock St., n s, 100′ w Nostrand Ave., 3 three-st'y brown-stone dwells., tin roofs; cost, each, $9,000; owner and builder, S. E. C. Russell, 58 Hancock St.; architect, I. D. Reynolds.

Quincy St., s s, 70′ e Marcy Ave., 4 two-st'y front and three-st'y rear brick and brown-stone dwells., tin roofs; cost, each, $5,000; owners, Tomkins & McIndoe, 542 Marcy Ave.; architect, E. F. Gaylor; builders, S. J. Burrows and E. Hendrickson.

Franklin Ave., n e cor. Pacific St., three-st'y brick and brown-stone store and dwell., tin roof; cost, $6,000; owner and builder, D. H. Fowler, 777 Bedford Ave.; architect, W. M. Coots.

Pacific St., n s, 55′ e Franklin Ave., four-st'y brick tenement, tin roof; cost, $10,000; owner and builder, D. H. Fowler, 777 Bedford Ave.; architect, W. M. Coots.

Wyckoff St., *No.* 92, s s, 175′ e Smith St., four-st'y brick tenement, tin roof; cost, $8,000; owners, Jezek & Moller, 147 East Forty-fourth St., New York; architect, F. Jezek.

Twenty-third St., n s, 250′ e Third Ave., 2 three-st'y brick tenements, tin roofs; cost, each, $6,000; owners, S. K. & E. H. Frost, 100 Park Pl., New York; architect, W. M. Calder; mason, not selected; contractor, A. G. Calder.

Willoughby St., n s, 50′ e Bridge St., two-st'y brick store and dwell., tin roof; cost, $5,000; owner, Dr. Shepard, 174 Willoughby St.; architect and builder, C. P. Skelton.

Sixteenth St., s s, 79′ w Third Ave., 2 three-st'y frame tenements, tin roofs; cost, each, $3 250; owner, Henry Schwartje, Third Ave. and Sixteenth St.; builder, John Sorenson; architect, W. H. Wirth.

ALTERATIONS.—*North Tenth St.*, foot of, add one-st'y building; cost, $10,0 0; owner, Pratt Manufacturing Co., foot North Twelfth St.; architect, T. R. Robbins; builder, not selected.

Bedford Ave., *No.* 191, three-st'y and basement brick extension, tin roof, iron cornice; cost, $10,000; owner, Walter M. Lock, on premises; architect, E. F. Gaylor; builder, J. Schermerhorn.

Clinton Ave., *No.* 401, new bay-window on front, also interior alterations and new window in gable; cost, $5,000; owner, J. J. Williams, 100 John St., New York; architect, M. Lambkin; builders, J. Kent and L. W. Seaman, Jr.

Chicago.

BUILDING PERMITS.—D. Pyott, 2 two-st'y dwells., 689 and 691 West Harrison St.; cost, $7,000.

J. Clark, four-st'y shop, 13 North Jefferson St.; cost, $8,000.

J. J. Kelly, two-st'y dwell., 194 Sheffield St.; cost, $3,000; architect, Anderson; builder, Wakeman.
G. Weissmann, two-st'y store and dwell., 490 Franklin St.; cost, $4,000.
M. Prykauzer, two-st'y flats, 206 Mohawk St.; cost, $4,500.
Fisher & Holling, bakery, Sebor St.; cost, $4,500.
Nolan & Callahan, three-st'y store and flats, 129 to 135 Wells St.; cost, $22,000; architect, J. Speyer; builder, T. Keating.
H. Stern; two-st'y dwell., 2915 Prairie Ave.; cost, $12,000.
F. Truka, two-st'y store and dwell., 604 Jefferson St.; cost, $3,300.
J. Nerad, three-st'y store and dwell., 154 Bunker St.; cost, $5,000.
Church of the Covenant, one-st'y church, 1023 North Halsted St.; cost, $9,000.
J. L. & C. N. Griffith, 2 three-st'y dwells., 180 and 182 Sebor St.; cost, $8,000.
J. Lichtenthal, three-st'y dwell., 140 Larrabee St.; cost, $4,000.
J. P. Doerr, three-st'y store and dwell., 2808 Wentworth Ave.; cost, $4,000.
H. C. Kriete, two-st'y dwell., 73 Lincoln Ave.; cost, $6,500; architects, Schaub & Berlin.
J. Schaen, three-st'y dwell., 555 Hulbert St.; cost, $7,500; architects, Furst & Rudolph.
J. Hannon, two-st'y flats, 3753-3757 Forest Ave.; cost, $9,500; architects, Thomas & Rogers.
Mrs. H. G. Stockton, 3 three st'y dwells., 11-19 Belleview Pl.; cost, $12,000.
M. Hogan, two-st'y dwell., 260 Fourteenth St.; cost, $2,500.
L. Koehn, three-st'y store and dwell., 147 North Ave.; cost, $8,500.
William H. Harper, manager, elevator-building, Haines St. and North Branch; cost, $180,000.
B. Klein, three-st'y flats, 2621 Portland St.; cost, $3,000.
N. W. Horse Nail Co., office, 232 South Clinton St.; cost, $2,500.
C. Holman, two-st'y dwell., 998 West Congress St.; cost, $3,000.
F. Frantzen, three-st'y dwell., 113 West Ohio St.; cost, $5,500.
M. C. Stearns, two-st'y dwell., Twenty-seventh and Lime Sts.; cost, $5,400.
M. C. Stearns, three-st'y dwell., 27 Douglas Ave.; cost, $8,000; architects, Adler & Sullivan.
Trinity Methodist Mission Church, three-st'y church, 2336-2340 Wentworth Ave.; cost, $24,000; architect, W. A. Furber.
J. G. Shortall, two-st'y dwell., 1600 Prairie Ave.; cost, $10,000; architect, C. A. Alexander.
J. W. Garvey, three-st'y store and dwell., 226 and 228 West Eighteenth St.; cost, $6,000.
H. Iverson, three-st'y dwell., 178 West Huron St.; cost, $4,000.
J. Panos, three-st'y dwell., 15 Johnson St.; cost, $4,500.
J. Hickey, two-st'y store and dwell., Erie and Wood Sts.; cost, $4,000.
Mrs. McLaughlin, three-st'y dwell., 309 Loomis St.; cost, $3,700.
M. A. Devine, 2 three-st'y stores and dwells., 68 and 70 North State St.; cost, $13,000; architect, J. J. Egan.
J. Rodant, two-st'y dwell., 3140 Laurel St.; cost, $3,000.
R. Excell, two-st'y dwell., 19 Bryant Ave.; cost, $10,000; architect and builder, R. Excell.
Geo. Healy, two-st'y dwell., 55 Cedar St.; cost, $9,000.
T. Sheldon, two-st'y dwell., 33 Belleview Pl.; cost, $6,000.
P. Nelson, three-st'y store and flats, 22 Milton Ave.; cost, $4,000.
Western Ave. Baptist Church, addition; cost, $6,000.
H. Hoepe, 3 cottages, 105-111 Lubeck St.; cost, $2,700.
W. Balcom, additional story, 2027 Michigan Ave.; cost, $5,000.
H. McNulty, three-st'y store and dwell., 3256 Lasalle St.; cost, $6,500; architect, W. L. Carroll.
O. Oleson, three-st'y flats, 593 West North Ave.; cost, $2,500.
J. J. Healey, 2 three-st'y dwells., 19 and 21 Lane Pl.; cost, $10,000; architect, J. J. Clifford; builder, S. Hayes.
J. H. Dahmke, three-st'y store and dwell., 980 Lake St.; cost, $4,500.

COMPETITION.

STATE-HOUSE.

[At Denver, Col.]

STATE OF COLORADO,
OFFICE OF THE BOARD OF CAPITOL MANAGERS,
DENVER, April 16, 1885.

In pursuance of an Act of the Fifth General Assembly of the State of Colorado, entitled "An Act to provide for the erection of a State Capitol Building at the City of Denver, and creating a Board of Management and Supervision, and appropriating funds therefor," plans and specifications for a Capitol building which, when erected, shall not cost to exceed one million of dollars, will be received by the Board of Managers **until 12 o'clock meridian, on the tenth day of July, 1885.**

The said Capitol building will be erected upon the summit of a plat of ground in the city of Denver, State of Colorado, known as Capitol Hill, with its principal façade to the west. The length of said building to be about 300′, and no plans will be considered for a building that are over 310′ in length. The breadth, height and general form must be in such proportion to its length as to constitute a symmetrical building, and must be constructed with special regard to strength and durability. The facing and ornamentation of the superstructure, including cornices, pediments and ballustrades, will be of stone.

Drawings must consist of foundation, sub-basement, basement, or first, second or third story plans, roof plans, and section of same, longitudinal section, transverse section, front, rear and end elevations, dome plan, giving section of same and material used, and method of construction from base to summit. Also giving diameter or area of base, style of architecture and extreme elevation.

The said Capitol building shall be built of stone, brick and iron, as far as practicable, and of material found in the State of Colorado, provided the same can be found in said State as cheaply as other materials of like quality in other localities. The entire building must be made as nearly as possible fireproof. The laws of acoustics must be carefully observed. The materials used in said building must be of the best quality. Provision must be made for steam-heating apparatus, and for the drainage, lighting and ventilation of said building in the most approved manner; and such a number of fireproof vaults as may be necessary for the preservation of the books and papers of the various departments of the State Government; also for elevators, water closets, etc.

All plans and scale drawings must be put on wooden frames or stretchers in order that they may be convenient for examination, and on a scale of one-eighth of an inch to one foot.

Compensation for plans and specifications will be as follows: For the best set of plans and specifications the sum of $4,500; for the second, $1,000; for the third, the sum of $800. All plans and specifications for which money is paid shall become the property of the State. The architect whose plans are adopted will be required to furnish the same in duplicate. For the detailed working plans and supervision, the amount shall not exceed two and one-half per cent of the cost of said building. No plan will be adopted until it shall be definitely ascertained that the entire cost of said Capitol building shall not exceed the sum of $1,000,000.

Said building must contain the following rooms, and such other rooms as convenience and symmetry require:

The sub-basement shall be eight feet between joists, and adapted to the use of the machinery, etc., of the building.

The basement story to be not less than fourteen feet between joists, and extend twelve feet above the surface of the surrounding ground. Said basement story to be divided into rooms to be used for the Adjutant-General's quarters, Historical Society, Horticultural Society, State Geologist and Mineral Cabinet, Commissioner and Inspector of Mines, and Storage Rooms.

First, or principal office story, to be not less than twenty feet between joists, and to contain, as near as practicable, the following rooms, to wit:

Three rooms for the Governor.
Same for Secretary of State.
Three rooms for Auditor of State.
Same for State Treasurer.
Two rooms for Insurance Department, two rooms for Attorney-General, three rooms for State Engineer, three rooms for Railroad Commissioner.
Four rooms for State Board of Land Commissioners, three rooms for Superintendent of Public Instruction.

Second, or double story, to be not less than forty-two feet between joists. The Senate Chamber, Hall of House of Representatives, Supreme Court Room and State Library to be of full height, other rooms to be approximately half of said height.

One Senate Chamber, with lobbies and galleries of appropriate dimensions, to accomodate fifty Senators; one room for Lieutenant-Governor and President, one room for Secretary of Senate, one Post-office, one Stationery and Bill room, one Sergeant-at-Arms room, cloak room, lavatory and closets; two rooms for Engrossing Committee, two rooms for Enrolling Committee, and not less than ten other appropriate committee rooms for use of Senate.

One hall for House of Representatives, with lobbies and galleries of appropriate dimensions, to accomodate one hundred members; one room for Speaker of the House, one room for Chief Clerk of House, one Post-office, one Stationery and Bill room, one Sergeant-at-Arms room, cloak room, lavatory and closets, two rooms for Engrossing Committee, two rooms for Enrolling Committee, and not less than ten other appropriate committee rooms for the use of House of Representatives.

One State library room, one Librarian's room, and ten committee rooms.

One Supreme Court room, one law library room, one Clerk of Court room, one Marshal of Court room, one consultation room, six judges' private rooms, with fireproof vaults, lavatory and closets attatched.

Public lavatory and closets on each floor of said building.

The drawings must be sent to the "Board of Capitol Managers," Denver, Colorado, and be endorsed "Plans for State Capitol Building," and must come under a *nom de plume*, the real name and address to be sent to the Board of Managers in a sealed envelope, marked "private," which will not be opened until after the award is made.

The Board reserves the right to reject any and all plans.

For further information apply to

BOARD OF CAPITOL MANAGERS.

GEO. T. CLARK,
Secretary. P. O. Box, 2291.

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PROPOSALS.

IRON-WORK.

[At Syracuse, N. Y.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., April 30, 1885.

Sealed proposals will be received at this office **until 2 P. M., on the 21st day of May, 1885,** for furnishing and setting in place the iron columns of first story, and all the iron beams, girders, channels, angles, etc., for the second, third, fourth and attic story floors of the post-office, court-house, etc., building at Syracuse, N. Y., in accordance with drawings and specification, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

Bids must be accompanied by a certified check for $500, drawn to the order of "The Secretary of the Treasury," as a guaranty that the bidder will enter into a contract, if his bid is accepted, and furnish a bond equal to the amount of the contract.

Bids received after the time of opening will not be considered. M. E. BELL,
490 Supervising Architect.

HEATING AND PLUMBING.

[At Traverse City, Mich.]

TRAVERSE CITY, MICH., April 28, 1885.

Sealed proposals will be received at Traverse City, Mich., by the Board of Commissioners of the Northern Asylum for the Insane, **until 10 A. M., of Thursday, June 4, 1885, at** which time said proposals will be opened, for all labor and materials required for the heating and plumbing, either or both, of the Northern Asylum for the Insane, at Traverse City, Mich., including radiators, steam distribution, hot and cold water distribution, hot-water boilers, tanks, pumps, bath-room, lavatory and closet, fixtures, etc., in accordance with plans and specifications adopted by said Board.

Said plans and specifications can be examined at the office of the superintent, at the Northern Asylum, on and after May 11, 1885.

For further information relative to the plans or conditions, address, C. M. WELLS,
Superintendent.

By order of the Board of Commissioners. 492

LATHING AND PLASTERING.

[At Frankfort, Ky.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., April 24, 1885.

Sealed proposals will be received at this office **until 2 P. M., on the 22d day of May, 1885,** for all lathing and plastering required in the court-house, post-office, etc., building at Frankfort, Ky., in accordance with drawings and specification, copies of which and any additional information may be obtained on application at this office or the office of the superintendent.

Bids must be accompanied by a certified check for $300.00, drawn to the order of the Secretary of the Treasury, as a guarantee that the bidder will enter into a contract, if his bid is accepted, and furnish a bond equal to the amount of contract.

Bids received after the time of opening will not be considered. M. E. BELL.
489 Supervising Architect.

IRON-WORK.

[At Hannibal, Mo.]

OFFICE OF SUPERVISING ARCHITECT.
TREASURY DEPARTMENT,
WASHINGTON, D. C., April 30, 1885.

Sealed proposals will be received at this office **until 2 P. M., on the 21st day of May, 1885,** for furnishing and fixing in place, complete, the iron columns for first story, and all iron beams, girders, channels, etc., for the second and third story floors of the post office, etc., building at Hannibal, Mo., in accordance with drawings and specifications, copies of which and any additional information may be obtained at this office or the office of the superintendent of the building.

Bids must be accompanied by a certified check for $300, drawn to the order of the Secretary of the Treasury, as a guarantee that the bidder will enter into a contract, if his bid is accepted, and furnish a bond equal to the amount of the contract.

Bids received after the time of opening will not be considered. M. E. BELL,
490 Supervising Architect.

SLATING.

[At Toledo, O.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., May 1, 1885.

Sealed proposals will be received at this office **until 2 P. M., on the 29th day of May, 1885,** for furnishing and laying all the slate required for the roof of the custom-house, etc., building at Toledo, O., in accordance with drawings and specification, copies of which and any additional information may be had on application at this office or the office of the superintendent.

Bids must be accompanied by a certified check for $200, drawn to the order of the Secretary of the Treasury, as a guarantee that the bidder will enter into a contract, if his bid is accepted, and furnish a bond equal to the amount of the contract.

Bids received after the time of opening will not be considered. M. E. BELL,
490 Supervising Architect.

GRAVING DOCK.

[At Esquimault, B. C.]

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, March 20, 1885.

Sealed tenders addressed to the undersigned, and endorsed "Tender for Caisson, Graving Dock, B. C," will be received at this office, **until Monday, the 1st day of June, 1885,** inclusively, for the construction, erection and placing in position of a caisson for the graving dock at Esquimault, B. C., according to plans and specifications to be seen at the Department of Public Works, Ottawa, and on application to the Hon. J. W. Trutch, Victoria, B. C.

Persons tendering are notified that tenders will not be considered unless made on the printed forms supplied, the blanks properly filled in, and signed with their actual signatures.

Each tender must be accompanied by an *accepted* bank check for the sum of $2,000, made payable to the order of the Honorable the Minister of Public Works, which will be forfeited if the party decline to enter into a contract when called on to do so, or if he fail to complete the work contracted for. If the tender be not accepted, the check will be returned.

The Department will not be bound to accept the lowest or any tender.

By order, A. GOBEIL, Secretary.
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